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BACTEREMIA FOLLOWING TONSILLECTOMY

EFFECT OF PREOPERATIVE TREATMENT WITH ANTIBIOTICS IN POSTOPERATIVE BACTEREMIA AND IN BACTERIAL CONTENT OF TONSILS

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This progress report on a clinical investigation was undertaken to throw light on the questions of: (1) the presence of a transient bacteremia after tonsillectomy that is similar to that observed after tooth extraction and its prevention by preoperative treatment with penicillin and other antibiotics, (2) the amount of information regarding the bacterial content of the deeper lymphoid tissue of the tonsils given by cultures from the surface of the throat, and (3) how antibiotic therapy affects the bacterial content of the deeper structures of the tonsil.

METHOD

Directly after the operation, while the patient was still in the operating room, blood was removed aseptically from the antecubital vein and added to Tryptose Phosphate broth and heart infusion agar for cultures of aerobic and anaerobic bacteria. Adequate penicillinase was added to the culture medium in the cases in which the subjects had been taking penicillin. Half the blood agar plates were rendered airtight as follows: As soon as the agar had solidified, melted, cooled, plain heart infusion agar was poured over the entire plate and allowed to solidify. Paraffin that had been heated until it reached the bubbling stage was allowed to cool and was poured over the agar. These cultures were observed for two weeks to see if bacterial colonies appeared. Most of the blood cultures in which bacteria appeared had a growth within 48 hours.

In determining the amount and type of bacteria in the tonsils, a technique similar to that employed by one of us (P. S. R.)[1] in a previous study was used. In the operating room, tonsils excised by one of the five otolaryngologists who cooperated in the investigation were placed in dry sterile gauze. Then, with a sterile scalpel, a piece weighing about 1 gm. was excised from the middle portion of one of the tonsils. The actual weight was determined on an analytic balance. The piece of tonsil tissue was then ground up in a sterile mortar containing a little sterile sand (1 gm.) and 9 ml. of sterile Tryptose Phosphate broth. One milliliter of the prepared suspension was added to 9 ml. of sterile Tryptose Phosphate broth in a second tube and was thoroughly mixed. Then 1 ml. of this dilution was added to a third tube containing 9 ml. of Tryptose Phosphate broth. This serial dilution was carried forward until a final dilution of 1:1 million was reached. Starting with the 1:10 dilution, 1 ml. amounts from each tube were added to 9 ml. of melted agar and 1 ml. of defibrinated sheep's blood, and pour plates were made immediately. At the end of 48 hours' incubation, the number of bacterial colonies growing from the tonsil specimen was estimated by averaging the amounts from each of the plates in which the colonies were not too numerous to count. The bacterial count per gram of tonsil tissue was then calculated. For purposes of calculation, the figure of <1 billion was used when the colonies in the plates containing a 1:10 million dilution of inoculum were too numerous to count. A piece from the remainder of the tonsil was removed and preserved in formaldehyde solution (Formalin) for subsequent preparation of sections for microscopic examination. In the majority of instances, a throat culture on blood agar was taken in the operating room just before the operation.

PREOPERATIVE TREATMENT

One hundred thirty-eight patients were studied. A control group of 68 patients had no preoperative antibacterial treatment. Twenty subjects received procaine penicillin intramuscularly in doses of 600,000 or 800,000 units daily for periods of 4 to 10 days, including the morning of tonsillectomy. In children under 5 years of age, half this dose was given. The average duration of treatment

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1. Rhoads, P. S., and Dick, G. F.: Efficacy of Tonsillectomy for the Removal of Focal Infection, J. A. M. A. **91**: 1149 (Oct. 20) 1928.

was seven days. A group of 29 patients received a similar dose given intramuscularly 12 to 18 hours before and again one hour before operation. In two members of this group, the dose to be given one hour before tonsillectomy was omitted. Seven patients received one teaspoonful of an emulsion of penicillin (300,000 units) orally either three or four times daily for five to seven days prior to surgery.

A miscellaneous group of 14 patients was composed of 7 who received 100 to 300 mg. of erythromycin, depending on their age, orally four times a day for five to seven days before operation; 3 children who received 500 mg. to 1 gm. of oxytetracycline (Terramycin) orally in divided doses at intervals of four hours daily for two to five days prior to surgery; one adult who received 250 mg. of tetracycline (Achromycin) four times a day for four days, oxytetracycline for two days, and one dose of 600,000 units of procaine penicillin intramuscularly 12 hours before operation; and 3 patients who received sulfonamides preoperatively. Although the latter is a very small group, it is of interest because one member, a patient with chronic rheumatic heart disease, had taken 1 gm. of sulfadiazine daily for six months prior to operation; another patient with chronic rheumatic heart disease received 1 gm. of sulfisoxazole (Gantrisin) daily for six weeks; and a third child received a combination tablet (0.3 gm. of meth-dia-mer-sulfonamides [sulfadiazine, sulfamerazine, and sulfamethazine] and 225,000 units of penicillin) daily for three days prior to tonsillectomy.

TABLE 1.—*Incidence of Bacteremia After Tonsillectomy*

Drug	Dose	Duration of Preoperative Treatment	Method of Administration	Blood Cultures: No. of Patients	Blood Cultures: Positive, %	Blood Cultures: Negative, %	No. of Patients on Whom Not Taken
Procaine penicillin	600,000-800,000 units	Daily, 4-10 days	Intramuscularly	29	5.89	94.11	3
Procaine penicillin	600,000-800,000 units	1 or 2 doses	Intramuscularly	29	30.76	69.23	3
Penicillin G	900,000-1,200,000 units	Daily, 5-7 days	Orally	7	57.14	42.86	..
Erythromycin	400 mg.-1.2 gm.	Daily, 5-7 days	Orally	7	50.0	50.0	1
Oxytetracycline	500 mg.-1 gm.	Daily, 2-5 days	Orally	4	50.0	50.0	2
Meth-dia-mer-sulfonamides and penicillin	0.3 gm. 225,000 units	Daily, 3 days	Orally	1	....	1 patient	..
Sulfonamides *	1 gm.	Daily, several weeks	Orally	2	50.0	50.0	..
Patients untreated				68	28.33	71.67	8

* Both patients treated for rheumatic fever, one received sulfadiazine and the other sulfisoxazole.

RESULTS OF BLOOD CULTURES

Table 1 shows that 28.3% of the unprotected group had bacteremia after tonsillectomy. So far as we know, this was a transient affair, since a prolonged septicemia did not develop. In the group of 20 patients who had penicillin therapy for 4 to 10 days preoperatively, only one instance of bacteremia was discovered. This patient had received 600,000 units of penicillin on two successive days, then skipped a day, and had similar doses 18 hours and one hour prior to tonsillectomy. In the group in which the subjects received only two doses of penicillin prior to tonsillectomy, the incidence of bacteremia was not reduced. Apparently no protection was afforded to the group of seven patients receiving penicillin orally for five to seven days prior to tonsillectomy, because the incidence of bacteremia was higher in this group than in the controls. As noted in table 1, erythromycin also did not protect against bacteremia in the dose given in this small series. The oxytetracycline and sulfonamide protection series is too small to permit any conclusions to be drawn from it; however, it is of interest that, in one subject who had received 1 gm. of sulfadiazine daily for six months as a protection against recurrent rheumatic fever and endocarditis, the throat culture taken before tonsillectomy was positive for beta hemolytic streptococci and the excised tonsils contained a heavy growth of this micro-organism. The blood culture of this patient was negative. A blood culture taken after tonsillectomy was positive in a child to whom sulfisoxazole had been administered in 1 gm. doses daily for six weeks prior to tonsillectomy. No beta hemolytic streptococci were obtained from his tonsils. In the blood cultures, beta hemolytic streptococci were obtained four times, pneumococci once, alpha hemolytic streptococci or gamma anhemolytic streptococci 28 times, and a combination beta hemolytic streptococci and gamma anhemolytic streptococci twice. There was no direct correlation between the proportion of the various micro-organisms in cultures of the excised tonsils and in the blood cultures. The distribution of positive blood cultures according to the medium used was as follows: Tryptose Phosphate broth only, 3 cultures; agar in plates that were airtight, 22 cultures; Tryptose Phosphate broth and agar in airtight plates, 7 cultures; agar from both airtight and non-airtight plates, 1 culture each; and Tryptose Phosphate broth and agar from both airtight and non-airtight plates, 2 cultures. It will be noted that the incidence of positive blood cultures was much higher in cultures that were airtight than in those in which air was present. These results correspond with our findings in a study of bacteremia after tooth extractions.[2]

RESULTS OF THROAT AND TONSIL CULTURES

As will be noted in table 2, most of the throat cultures taken preoperatively contained alpha hemolytic streptococci (green producing) or gamma anhemolytic streptococci. Micrococcus (Staphylococcus) colonies are listed in tables only when a significant number were present. Gram-negative bacilli appeared only in the throats of those patients treated with penicillin. Beta hemolytic streptococci were present in 28.26% of the throat cul-

2. Rhoads, P. S.; Schram, W. R., and Adair, D.: Bacteremia Following Tooth Extraction: Prevention with Penicillin and N. U. 445, J. A. M. A. 41:55 (July) 1950.

tures taken before tonsillectomy in the control group that had had no antibiotic treatment but in only one patient receiving penicillin. However, beta hemolytic streptococci were found in 57.35% of the cultures from excised tonsils of patients in the control group who received no antibacterial medication prior to tonsillectomy. Prolonged treatment with penicillin (4 to 10 days) was effective in eradicating beta hemolytic streptococci from the tonsils of the patients so treated except in one instance in which the bacterial count for these micro-organisms was 22,000 as compared to an average of 444,803,000 in the untreated controls (see figure). Only one of the seven patients in the group treated with penicillin administered orally had beta hemolytic streptococci in the excised tonsils, but the total bacterial count in this one instance was not materially reduced. Beta hemolytic streptococci were present in 31.03% of the cultures from the excised tonsils of patients in the group that received penicillin only the day before and the day of operation, although throat cultures taken preoperatively had been negative in all of these subjects.

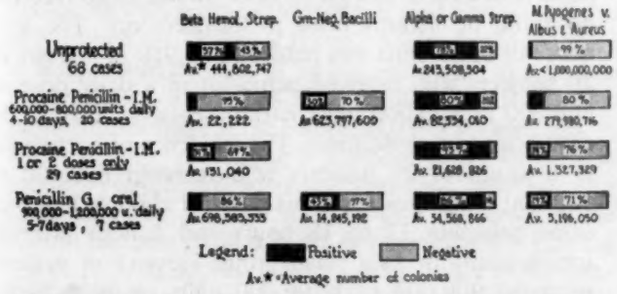
ment. Indeed, a higher percentage of patients treated with penicillin harbored micrococci in their tonsils than did those receiving no preoperative treatment. This is in line with many recent reports that indicate that about 60% of Micrococcus strains are now penicillin resistant.

Of greater interest is the change of bacterial flora in the group receiving penicillin over a period of several days. A pure culture of Klebsiella pneumoniae was found in the excised tonsils of one patient; exceedingly large numbers of Escherichia coli were present in eight patients; and large numbers of Aerobacter aerogenes appeared in one other patient (table 2). In the four patients receiving short courses of oxytetracycline preoperatively, beta hemolytic streptococci apparently were greatly inhibited, and in one patient who, in addition, received 600,000 units of procaine penicillin intramuscularly 12 hours before the operation, there was a fairly heavy growth of Esch. coli. In the seven patients who took erythromycin prior to tonsillectomy, beta hemolytic streptococci were apparently inhibited but not eliminated and there was no significant suppression of the other gram-positive micro-

TABLE 2.—*Percentage of Patients Showing Various Bacteria in Preoperative Throat Cultures and Cultures of Excised Tonsils*

	Beta Hemolytic Streptococcus	Alpha Hemolytic Streptococcus or Gamma Anhemolytic Streptococcus	Micrococcus	D. Pneumoniae	K. Pneumoniae	A. Aerogenes	Esch. Coli	Bacillus Subtilis	Gaffkya Tetragena	Neisseria Catarrhalis
Preoperative throat cultures										
Patients untreated....	28.26	67.39	2.17	....	....	....	....	....	....	2.17
Patients treated.....	1.67	41.67	20.00	1.67	1.67	1.67	6.67	....	....	25.00
Cultures of excised tonsils										
Patients untreated....	57.35	77.94	1.47	1.47	....	....	....	....	....	.....
Patients treated.....	22.85	84.28	28.57	5.71	1.42	1.42	11.42	1.42	4.28	11.42

The figure shows that, as judged from cultures starting at 1:100 dilution, the bacterial content of the tonsils of patients not receiving antibiotics is composed exclusively of gram-positive bacteria, with streptococci predominating. Micrococci and pneumococci may have been present in small numbers in a high percentage of these tonsils, but, in the dilutions at which the counts were made, they were found very rarely. The highest total bacterial counts



Changes in bacterial content of excised tonsils due to preoperative treatment with penicillin. The average number of colonies is given per gram of tonsil tissue.

were found in patients harboring beta hemolytic streptococci. Alpha hemolytic streptococci and gamma anhemolytic streptococci were greatly inhibited by penicillin treatment, as was seen by the average counts in the quantitative cultures, but not to the same degree as were beta hemolytic streptococci. On the other hand, the growth of micrococci was only slightly affected by penicillin treatorganisms. No gram-negative micro-organisms appeared in the cultures of these tonsils.

COMMENT

The most disturbing result of the present study, at least to us, was the incidence of a temporary postoperative bacteremia in 28.3% of the persons undergoing tonsillectomy who had had no preoperative antibiotic therapy. This is not a new observation. There are reports in the literature of series of blood cultures taken directly after tonsillectomy that date from 1929 through 1941.[3] In some series, no micro-organisms were recovered. In others, figures for positive blood cultures ranging between 3 and 38% were recorded. We have found no recent reports of

3. (*a*) Rubin, M.; Epstein, M., and Werner, M.: Blood Cultures After Tonsillectomy, Am. J. Dis. Child. **38**: 726 (Oct.) 1929. (*b*) Bartlett, F. H., and Pratt, J. S.: Streptococci Isolated from Excised Tonsils and Post-Tonsillectomy Blood Cultures: Preliminary Report, ibid. **41**: 285 (Feb.) 1931. (*c*) Wirth, E.: Die Tonsillektomie bei akuter Tonsillitis und bei tonsillogener Sepsis, München. med. Wchnschr. **79**: 1673 (Oct. 14) 1932. (*d*) Fischer, J., and Gottdenker, F.: Über transitorische Bakterieneinschwemmung in die Blutbahn nach Tonsillektomie, Monatsschr. f. Ohrenh. **69**: 1420 (Dec.) 1935. (*e*) Mittermaier, R.: Über die Bakterieneinschwemmung in die Blutbahn nach Tonsillektomie und über die Phagozytose bei Tonsillenerkrankungen, ibid. **71**: 316 (March) 1937. (*f*) Southworth, H., and Flake, C.: Blood Cultures After Tonsillectomy, Am. J. M. Sc. **195**: 667 (May) 1938. (*g*) Feldman, L., and Trace, I. M.: Subacute Bacterial Endocarditis Following the Removal of Teeth or Tonsils, Ann. Int. Med. **11**: 2124 (June) 1938. (*h*) Elliott, S. D.: Bacteremia Following Tonsillectomy, Lancet **2**: 589 (Sept. 9) 1939. (*i*) Reiman, H. A., and Havens, W. P.: Focal Infection and Systemic Disease: A Critical Appraisal. The Case Against Indiscriminate Removal of Teeth and Tonsils, J. A. M. A. **114**: 1 (Jan. 6) 1940. (*j*) Fischer, J., and Gottdenker, F.: Transient Bacteremia Following Tonsillectomy: Experimental Bacteriological and Clinical Studies, Laryngoscope **51**: 271 (March) 1941.

this phenomenon. This is surprising in view of the interest in the past two or three years in the prevention of bacteremia after tooth extraction. While the danger of setting up active subacute bacterial endocarditis from tonsillectomy appears to be less than the risk involved in removing infected teeth from persons with previous valvular damage, cases have been cited in which the relationship between post-tonsillectomy bacteremia and the onset of subacute bacterial endocarditis and septicemia appeared to be quite direct.[4]

The fact that there is apparently a higher incidence of subacute bacterial endocarditis traceable to tooth extraction than to tonsillectomy probably depends on the age groups involved. The majority of tonsillectomies are performed on children and young adults, most of whom have not had previous valvular damage, while tooth extractions are usually done on older persons, a higher percentage of whom have had previous valvular changes. From the data accumulated from our own studies, it appears that bacteremia after tonsillectomy is not as easy to prevent as bacteremia following tooth extraction. In a study in 1950,[2] the incidence of bacteremia after tooth extraction in untreated controls was 38.2%, while it was only 5.82% in persons receiving a single dose of procaine hydrochloride or aqueous crystalline penicillin or a 2 gm. oral dose of sulfisoxazole taken orally about one hour before operation. In the present study, there was no reduction in the bacteremia rate in persons receiving 600,000 to 800,000 units of procaine penicillin 12 to 18 hours and again one hour before tonsillectomy, of those receiving a single dose 12 to 18 hours before tonsillectomy, or of those treated for several days before operation with penicillin administered by the oral route. On the other hand, giving penicillin in a dose of 600,000 to 800,000 units intramuscularly daily for 4 to 10 days before operation proved quite effective. Bacteremia occurred only once in this group.

It can be inferred from table 2 that throat cultures often do not give a true indication of the bacterial flora of the depths of the tonsil, a phenomenon noted by several other authors.[5] Beta hemolytic streptococci were present in 28.26% of the throat cultures taken preoperatively and in 57.35% of the cultures made from ground-up excised tonsils of the same patients receiving no antibiotics. Obviously, failure to find beta hemolytic streptococci in cultures of the nose and throat in the acute phase of a respiratory infection that is followed after some days by rheumatic fever or acute nephritis by no means proves that a beta hemolytic streptococcus infection was not present and was not responsible for the late complication.

In a previous study,[6] it was found that penicillin was quite effective in eliminating the beta hemolytic Streptococcus carrier state. This conclusion was arrived at by comparing the incidence of positive cultures of the nose and throat in penicillin-treated scarlet fever patients with that of scarlet fever patients treated in various other ways. However, it did not answer the question whether beta hemolytic streptococci are eliminated from the depths of the lymphoid tissue of the throat, as well as from the surface, by penicillin. From the data shown in table 2 and the figure, it appears that even one or two doses of penicillin markedly reduces the entire streptococcic content of the tonsil, particularly of beta hemolytic streptococci, and frequently eliminates the latter altogether. It was also noted that beta hemolytic streptococci were recovered in only one (5%) of the cultures from the excised tonsils of subjects receiving prolonged preoperative penicillin therapy.

Our experience and that of others is that elimination of the beta hemolytic Streptococcus carrier state by antibiotic therapy often is only temporary. Goerner, Massell, and Jones [5a] cite an extensive list of studies in support of this contention. This study and several others show that as the gram-positive flora of the throat (including the tonsil) is reduced by penicillin and other antibiotics gram-negative forms, such as K. pneumoniae and Esch. coli, proportionately increase. Sometimes these micro-organisms and others, such as Proteus, Pseudomonas aeruginosa, and Cryptococcus, increase under the influence of broad spectrum antibiotics in number and virulence to the point that fatal septicemia due to one of them ensues. Fortunately, this is rarely the case, and, on withdrawal of the antibiotic, the normal nose and throat flora are restored. When the pretreatment flora of the throat are restored, the micro-organisms that had been temporarily suppressed are often found to have gained resistance to the antibiotic that had been used in treatment. Hence, the hazard of prolonged antibiotic therapy not followed by extirpation of the tonsils may be serious, even if the micro-organisms that were the original objects of the antibacterial attack are temporarily eliminated.

SUMMARY AND CONCLUSIONS

Blood cultures taken just after tonsillectomy were positive in 28.3% of a group of 68 patients who received no antibiotic therapy prior to tonsillectomy. The incidence of bacteremia was reduced to 5.9% in a group of 20 subjects who received penicillin in a daily dose of 600,000 to 800,000 units intramuscularly for 4 to 10 days prior to tonsillectomy. The incidence of bacteremia in a group of 29 patients who received 600,000 to 800,000 unit doses (half this dose for children) of procaine penicillin 12 to 18 hours and 1 hour prior to tonsillectomy or in a small group (seven) of patients receiving 900,000 to 1,200,000 units orally daily for five to seven days prior to operation was not reduced below that of the control group. Beta hemolytic streptococci were obtained from blood cultures four times, pneumococci once, alpha hemolytic streptococci (green forming) or gamma anhemolytic streptococci 28 times, and a combination of beta hemolytic streptococci and gamma anhemolytic streptococci twice. The need for several days preoperative treatment with penicillin to prevent post-tonsillectomy bacteremia is obvious.

4. Abrahamson, L.: Subacute Bacterial Endocarditis Following the Removal of Septic Foci, Brit. M. J. **2**: 8 (July) 1931. Weiss, H.: Relation of Portal of Entry to Subacute Bacterial Endocarditis, Arch. Int. Med. **54**: 710 (Nov.) 1934. Rock, J. E.: Staphylococcic Septicemia, Tonsillar in Origin, J. Iowa M. Soc. **34**: 10 (Jan.) 1944. Feldman and Trace.[5c] Reiman and Havens.[11]

5. (a) Goerner, J. R.; Massell, B. F., and Jones, T. D.: Use of Penicillin in the Treatment of Carriers of Beta-Hemolytic Streptococci Among Patients with Rheumatic Fever, New England J. Med. **237**: 576 (Oct.) 1947. (b) Rantz, L. A.: The Hemolytic Streptococci: Studies on the Carrier State in the San Francisco Area, with Notes on the Methods of Isolation and Serological Classification of These Organisms, J. Infect. Dis. **69**: 248 (Nov.) 1941.

6. Rhoads, P. S.; Youmans, G. P., and Rosi, R.: Duration of the Infection in Scarlet Fever, Ann. Int. Med. **32**: 30 (Jan.) 1950.

In the control series of 68 patients who had no antibiotic treatment immediately preceding tonsillectomy, beta hemolytic streptococci were present in 57.4% of the cultures of the excised tonsils, although these micro-organisms were found in only 28.26% of throat cultures taken just before the operation. Among patients receiving penicillin in single doses only the day before and the day of tonsillectomy, 31.03% had beta hemolytic streptococci in the excised tonsils, although these micro-organisms were not present in the throat cultures taken just before tonsillectomy. Beta hemolytic streptococci were found only once in the cultures from the excised tonsils of persons receiving penicillin intramuscularly each day for 4 to 10 days prior to tonsillectomy. Most of the gram-positive micro-organisms except micrococci and Gaffkya tetragenus were greatly reduced in number by penicillin administered intramuscularly, but gram-negative micro-organisms, such as Klebsiella pneumoniae, Aerobacter aerogenes, and Escherichia coli, were found in increased numbers in cultures from the throats and excised tonsils of these subjects.

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ERGOTAMINE TOLERANCE IN PATIENTS WITH MIGRAINE

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The use of ergot for the treatment of headache was first recommended in 1898 by Thomson [1] in a medical textbook. In 1922 alkaloid ergotamine tartrate was developed, and several years after this its use in the treatment of migraine was suggested.[2] Since then it has become generally recognized as the treatment of choice in migraine. In view of its widespread and sometimes indiscriminate use, particularly in the treatment of headaches, it seems appropriate to review the value and use of this medicament. In particular we would like to discuss the phenomenon of tolerance in relation to drugs of the ergot family.

PHARMACOLOGY AND PHYSIOLOGICAL EFFECTS OF ERGOT

Ergot, a fungus (dried sclerotium of Claviceps purpurea) growing on the grain of cereals, is obtained commercially from infected rye. All ergot alkaloids are derived from lysergic acid and are related chemically and with respect to their actions. They occur in pairs that are stereoisomers. The ine-alkaloids are levorotatory and show more pharmacological activity than the dextroalkaloids. The active levorotatory isomers of ergot alkaloids may be divided into three groups: ergotamine, ergotoxine, and ergonovine. Ergotoxine and ergotamine are polypeptide derivatives of lysergic acid, while ergonovine is simpler and consists of an amino alcohol attached to the lysergic acid nucleus. The ergot alkaloids produce powerful reactions in the central nervous system, and, in addition, those containing a polypeptide side-chain also produce significant adrenergic-blocking activity. The ergot alkaloids act as a stimulus or a depressor to the central nervous system. There is some evidence that the ergot alkaloids depress certain centers in the brain stem. The effects of carbon dioxide on blood pressure and respiration are readily inhibited by the ergot alkaloids apparently by decreasing the response of medullary centers to direct stimulation by carbon dioxide. Furthermore, it is known the the diethylamide of lysergic acid in doses of 10 to 30 mcg. causes psychic responses that include an emotional state fluctuating between euphoria and depression and alterations in almost all sensory perception. In view of the fact that the ergot alkaloids produce powerful reactions in the central nervous system, the properties of the diethylamide of lysergic acid may be considered as extensions of actions common to the group. It is thus possible that some of the effects noted in patients taking large amounts of ergot, particularly mood changes, may result from psychic effects of the alkaloid.

One of the most characteristic effects of the ergot alkaloids is a direct stimulation of smooth muscle in many organs. In most instances this occurs in smaller doses than are necessary to produce adrenergic blocking. That stimulation of smooth muscle by ergot alkaloids is unaltered by Dibenamine (N,N-dibenzyl-β-chloroethylamine) is evidence against the effect being sympathomimetic in nature. Ergotamine may act as a direct coronary vasoconstrictor. Experiments have shown that ergotamine and dihydroergotamine produce a vasoconstriction of the extracranial arteries (branches of the external carotid) and apparently increase the cerebral blood flow, probably by dilating the branches of the internal carotid artery. Although ergot alkaloids possess a significant adrenergic-blocking activity, it is questionable that this occurs with the dosage used in the treatment of patients with headache. Hydrogenation decreases the ability to stimulate smooth muscle, and at the same time increases the adrenergic-blocking activity of all natural alkaloids. Yet in the treatment of patients with migraine the hydrogenation of ergot alkaloids, which increases adrenergic-blocking activity, reduces their therapeutic effectiveness. The physiological effects of ergot in a person are exceedingly variable. In some cases there is a slowing of the pulse and a slight rise in the blood pressure and in the cerebral spinal fluid pressure.[3] Ergot may delay the emptying of the

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1. Thomson, W. H.: "Migraine," in Loomis, A. L., and Thompson, W. G.: A Text-Book of Practical Medicine, New York, Lea Brothers, 1900, p. 541.

2. Lennox, W. G.: Ergonovine Versus Ergotamine as a Terminator of Migraine Headaches, Am. J. M. Sc. **195**: 458, 1938.

3. Bluntschli, H. J., and Goetz, R. H.: The Effect of Ergot Derivatives on the Circulation in Man, with Special Reference to Two New Hydrogenated Compounds (Dihydroergotamine and Dihydroergocornine), Am. Heart J. **35**: 873, 1948.

stomach presumably by direct action on the gastric muscle. The emetic activity occurring in the patient after ergotamine therapy is probably of central nature.

The possible untoward side-effects of ergotamine are: (1) nausea and vomiting; (2) coronary spasm due to constrictor effect on coronary vessels; (3) muscular cramps in neck and thigh, which are probably due to vascular spasm, ischemia, or both; and (4) ergotism, in its preliminary stage, characterized by numbness, cyanosis, and paresthesia in the extremities, and, in the final stage, gangrene. Ergotism is rare and probably requires the presence of a predisposing factor, e. g., liver dysfunction as well as peripheral vascular disease. Many authors have reported that ergotism is quite infrequent in patients who have migraine despite the rather high dosage of ergot that is sometimes taken over prolonged periods. Peters and Horton have reported on a number of patients who received between 1,000 and 1,500 mg. of ergotamine over a six year period without signs of ergotism developing.[4] Von Storch reported on 20 patients who took large doses of ergotamine over a period of one to five years without signs of ergot poisoning.[5] Lennox "has never encountered any alarming symptoms in patients with migraine, even though some of these have received daily injections of 0.5 mg. over a period of years."[6] Numerous other papers attest to the remarkable infrequency of ergotism despite high dosage over long periods.[7] On the other hand, we have read a number of papers describing the onset of angina pectoris or anginoid discomfort after ergotamine or dihydroergotamine. In many of the patients described there was a preexisting cardiac condition, although in some there was no previous indication of heart disease.[8]

While ergotism is rarely found in patients who use the drug in the treatment of migraine, it does occur. Silfverskiöld described the presence of changes in the hands of a patient, characteristic of the preliminary state of ergotism[9]; the patient's hands became normal after the patient discontinued treatment with ergotamine tartrate (Gynergen), which had been used. Thompson and associates[10] reported the subjective and objective findings of peripheral vascular changes in the legs of a patient who was using ergotamine tartrate. These returned to normal after the withdrawal of ergotamine tartrate and the intravenous injection of sodium nicotinate. There are several reports of gangrene due to ergotamine. Cleveland and King[11] have described the development of gangrene in one toe of a 32-year-old patient who received 0.25 mg. of ergotamine tartrate subcutaneously every four to six hours continuously for about two weeks. Martinetti[12] reported on a 60-year-old man with arteriosclerosis who showed symptoms of gangrene of the toes after a total of 600 injections of ergotamine tartrate (dosage and intervals between injections not stated). In our experience with over 1,000 patients with migraine, we have seen a considerable number of patients who have taken ergotamine once or twice a week for many years without signs of toxicity developing. Recently we observed five patients, four of whom were taking ergotamine at least once a day for more than six years. One of the patients was taking between 1.5 and 2.25 mg. daily of ergotamine tartrate by intramuscular injection for a period of eight years (total intake between 4,380 and 6,570 mg.). In none of these patients did subjective or objective signs of ergotism develop. However, several of these patients showed some interesting phenomena that indicate that tolerance and perhaps addiction did develop.

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REPORT OF CASES

CASE 1.—A 45-year-old married man has had recurrent headaches since the age of 30. The headaches developed in the patient after a pulmonary hemorrhage that occurred while he was in a sanatorium for the treatment of pulmonary tuberculosis. Initially the attacks of headache appeared once every four to six weeks. A prodromal period lasting about two hours was characterized by gastric upset, stiffness of the neck, hypersensitivity to noise, and throbbing pain in the left frontal region of the head involving the left eye. The pain was not relieved by aspirin compounds, and, at that time, the patient was given codeine and sedatives. Ten years ago ergotamine tartrate was given to the patient: 0.5 cc. (0.25 mg.) would relieve the pain within 45 minutes. For the next two years the patient was treated with ergotamine tartrate, but the dose had to be increased to 0.75 and sometimes 1 cc. The attacks became more frequent. For the past eight years the patient has had attacks of migraine headache every day, and for the past six years the attacks have occurred twice every day. The patient would awaken each morning with a throbbing headache and inject 1 to 2 cc. of ergotamine tartrate, which would dissipate the pain within 30 minutes. During the day the patient would feel well until about 5 p. m., at which time the pain would return and he would repeat the intramuscular injection of 1 to 2 cc., which rapidly induced relief. Thus the patient was taking a daily dose of from 1 to 2.25 mg. of ergotamine tartrate. From time to time he would experience cramp-like pains in the calves of the legs, but these were momentary. He was frequently nauseated and complained of vague abdominal pain.

The patient was admitted to Montefiore Hospital on Sept. 28, 1953. Physical examination did not reveal any significant abnormality. Electrocardiographic studies, roentgenograms of the skull and cervical spine, urinalysis, and complete blood count were all normal. In view of the longstanding exposure to ergot, a study of the peripheral vascular system was undertaken. This consisted of (1) measurement of pulsations in the extremities, (2) examination of the color of the skin and measurement of the temperature of the digits, ears, and nose, (3) oscillometer readings, and (4) immersion of the hands and forearms in water 110 F (43.3 C), with observation of the hyperemia of the immersed parts, plus observation of the vasodilator reflex (time taken for toes to warm up to maximum temperature). Results of these studies were within normal limits. For 10 days the patient was given diminishing doses of amobarbital (Amytal) sodium orally starting with 3 grains (0.2 gm.) twice daily. One cubic centimeter of dihydroergotamine (containing 1 mg. dihydroergotamine methanesulfonate) was given on the first two days. Before this the patient did not receive any ergot or its derivatives. The pain was fairly well controlled with the amobarbital sodium and became less intense each day. After the 10 day period the patient did not have any additional migraine attacks and was discharged 4 days later. During the eight years

that the patient took ergot daily he received a total of between 4,380 and 6,570 mg. of ergotamine tartrate. Pulse wave tracings of the temporal arteries were recorded simultaneously and bilaterally on the patient during the attacks of pain. The response to ergot was recorded. Six months after discharge from the hospital the patient had a thoracoplasty because of his tuberculous pulmonary disease. His headaches do not appear more often than about every 10 days. He is using tablets of amobarbital sodium to relieve the pain. When this is unsuccessful he is permitted to use 1 cc. of dihydroergotamine with strict instructions not to repeat injection for another 10 days.

CASE 2.—A 50-year-old man had migraine headaches since the age of 18. The headaches were at first infrequent, occurring from once a month to once every six months. When the patient reached the age of 47, the headaches were becoming more severe and more frequent and would occur about once every three weeks. At this stage a diagnosis of migraine was made, and the patient was given ergotamine with caffeine (Cafergot) suppositories (containing 2 mg. of ergotamine tartrate and 100 mg. of caffeine). The response to this medication was always prompt, relief from pain being absolute in half to one hour. The patient had ready access to ergotamine with caffeine, which he began to use indiscriminately. When he started using the suppositories, his headaches were 14 to 20 days apart. This interval became progressively shorter, until the patient was having an attack daily, for which he would use one or two suppositories. Since the diagnosis of migraine made three years ago and patient given ergotamine with caffeine, he has taken over 2,000 mg. of ergotamine tartrate. For the last two of these years he has taken at least one suppository of ergotamine with caffeine every day.

The patient was admitted to Montefiore Hospital on Nov. 24, 1953. Physical and laboratory examinations revealed no remarkable finding except a spinal fluid protein of 79 mg. %. (A repeat lumbar puncture gave a reading of 42 mg. %.) Ergotamine was given to the patient while he was in the hospital on only the first and the second days. On the third and fourth days the headaches were treated with intravenous injections of 7.5 grains (0.5 gm.) of amobarbital sodium. On the fifth day the patient had a headache that was very slight, and a mild sedative-analgesic compound was given to relieve the pain. On the sixth, seventh, and eighth days no headaches occurred, and on this last day the patient was discharged. Peripheral vascular studies on this patient also did not reveal any abnormality. Cranial artery pulsations were measured, and they demonstrated the usual changes in amplitude of pulsation of the cranial arteries during a migraine attack and its response to a constrictor medicament. After discharge from the hospital the patient remained free from headache for a period of six weeks. He then had a back injury that produced a prolapsed nucleus pulposus. This accident induced the return of the headaches, and the patient started ergotamine therapy again, taking one suppository every 36 hours. He is now awaiting a laminectomy.

CASE 3.—A 52-year-old man has had headaches since his early teens. About 15 years ago he started using ergotamine tartrate. The patient is a physician and gave himself injections. The headaches had always been unilateral and throbbing, with a prodromal period of gastric and visual disturbances. The diagnosis of migraine was never in doubt. Fifteen years ago 0.5 cc. of ergotamine tartrate would abort an attack. Now the patient requires 1.75 to 2 cc. The attacks now appear regularly between 2 p. m. and 4 p. m. daily. As he often has office hours during this period, he simply goes into the treatment room, injects ergotamine tartrate intramuscularly, lies down for 20 to 30 minutes, and then returns to his consultation room, free from headache. The patient has now been taking ergotamine tartrate every day for six years because of the daily attacks. During this time he has taken somewhere between 1,100 and 2,000 mg. of ergotamine tartrate. There has been no suggestion of ergot toxicity at any time. We were unable to persuade the patient to enter the hospital for further study or to isolate him from ergotamine tartrate. As far as we know he is still having daily headaches and is still taking 2 cc. of ergotamine tartrate about 2 p. m. every day.

CASE 4.—A 48-year-old man had a history of headaches that first appeared in his early teens. At the age of 20 the headaches became more severe, but occurred only once every four months. By the time he was 28 years old the headaches appeared every month. The headaches were mainly on the left side of the frontotemporal area and were associated with pain in the right upper quadrant, some nausea, and photophobia. The headaches were preceded by a feeling of depression, fatigue, and occasionally by a transient attack of scintillating scotoma. In 1939, when the patient was 35, he was given 0.5 cc. of ergotamine tartrate by injection at the onset of each attack. Ergotamine tartrate was given about once every three to four weeks for six months, but the patient's headaches began to appear much more frequently than they ever had previously. By the end of 1939 he was taking ergotamine tartrate twice weekly, and by the middle of 1940 he was taking 0.9 cc. of ergotamine tartrate daily in divided doses two and three times daily. Between 1940 and 1949 he took ergotamine tartrate every day by injection, the dose varying from 0.5 to 2 cc. every 24 hours. In 1949 he was given ergotamine with caffeine suppositories and has been taking these ever since. The patient's average daily dose is two suppositories with a variation of one-half suppository to three and one-half suppositories in a 24 hour period. Therapy with either ergotamine tartrate or ergotamine with caffeine suppositories has always relieved or aborted the headaches. The variation in the dose taken was determined by the patient according to the response of his headache to the medicament. There is a family history of headache (patient's mother) but it is not known whether her headaches were of the migraine type or not. The patient had symptoms of peptic ulceration (confirmed by roentgenographic examination) that were relieved by medical therapy. He has not had any postprandial epigastric distress in 13 years. Recent peripheral vascular studies indicated normal peripheral circulation despite the massive amounts of ergot that the patient has taken every day during the past 15 years. The total amount of ergot taken during this time was between 4,650 and 7,650 mg. of ergotamine tartrate.

CASE 5.—A 50-year-old married woman first had headaches in her early teens. At that time the headaches only appeared before the onset of the menstrual periods and would generally last for 24 hours. Occasionally, the headache would persist through the menses for four to five days. The patient had four normal pregnancies, and during all of these the headaches were completely absent. However, in each instance the headache episodes returned on the second or third month postpartum. The diagnosis of migraine was made in 1928, but ergotamine was not administered to this patient until seven years later. At this time, 1935, the headaches appeared every 28 days. With the use of 0.5 cc. of ergotamine tartrate the headache would be eliminated within two hours. This 28 day interval between attacks were reduced to seven days after the patient had used ergotamine tartrate for six months. By 1940 the patient was taking 1 cc. of ergotamine tartrate 25 to 28 days per month. The patient would waken in the morning with a headache and would inject 1 cc. of ergotamine tartrate intramuscularly. Between 1940 and 1947, the patient used ergotamine tartrate like a diabetic uses insulin: one injection almost every morning before breakfast, and she was free of headaches throughout the day. If she omitted to take the ergotamine tartrate a headache invariably would ensue.

In 1947, the patient suspected that the use of ergotamine tartrate was in some way linked to the increased number of headaches she was having. She decided to stop taking ergotamine tartrate and immediately had a headache that continued for six days. During this time she took aspirin to relieve some of the pain, but she did not take any other medicament. By the seventh day she was free of the headache and did not have another episode of headache for nearly two months. The total amount of ergot intake was 1,300 mg. In the years since then, this patient has been extremely cautious about the use of ergotamine tartrate. She makes it a point to take no more than two injections per month, and many months she takes none at all. When she was taking ergotamine tartrate daily she had headaches daily. Since she stopped taking ergotamine tartrate daily seven years ago she has never had more than four days of headache per month. During the remaining 26 to 27 days of the month the patient is free of headaches. Throughout the time the patient was taking ergotamine there was never any subjective or objective evidence of peripheral vascular disease.

COMMENT

Graham and Wolfson [13] have reported in detail a patient in whom tolerance developed to large doses of ergot alkaloids. The patient, who had migraine, was given ergotamine tartrate and later dihydroergotamine. The frequency of the use of this medication was gradually increased, as was also the dose of the drug necessary to induce a response. Simultaneous with this, the headaches became more frequent. Eventually the patient was taking ergotamine daily by injection, and finally the drug became ineffective even in individual doses of 3.5 mg. (7 cc.) of ergotamine tartrate. At this stage surgical procedures were used. The posterior root of the trigeminal nerve was resected, resulting in complete relief from pain. No ergotism developed in this patient. In each of the patients discussed in this paper and in the case reported by Graham and Wolfson, there was a pattern of headaches appearing originally about once each month and of dramatic relief from pain subsequent to exhibition of ergotamine. Over a period of time each patient noticed that the attacks were appearing more frequently and that the response to the same dosage became less dramatic. Each patient gradually began to increase the dosage of the medicament, some on the advice of the physician, others without his knowledge. With differences in time, each patient arrived at the same end-point, namely, daily episodes of migraine and a daily intake of ergotamine. One of the patients would daily anticipate and experience two distinct attacks every day, one on awakening and the other in the evening. The periods between the attacks were characterized by complete freedom from cranial pain. It is thus clear that the body can adapt to and develop a tolerance for much higher dosages of ergot than has previously been recognized.

Several years ago Moister, Stanton and Freis in studying the effects on the blood pressure of the ergot alkaloid dihydroergocornine and dihydroergokryptine concluded that tolerance to these drugs can develop after prolonged use.[14] The term tolerance is one that should be defined at this point. Himmelsbach and Small [15] have stated: "By tolerance is meant the gradual decrease in the effect produced by repeated administration of a drug; or conversely, a gradual increase in the dosage of the drug necessary to produce the same effect as did the initial dose." Seevers and Woods [16] proposed the following definition: "Acquired tolerance is a phenomenon of cellular adaptation to an alien chemical environment characterized by a diminishing biological response." Thus it is clear that our patients conform with this "law of tolerance." Isbell and White,[17] in a paper describing the characteristics of drugs of addiction, indicated that there are three criteria of addiction: (1) tolerance, (2) physical dependence, and (3) emotional dependence. Our patients would appear to bear some similarities to patients who have become addicted to narcotic drugs, in that a tolerance to ergot develops. It is difficult to separate emotional dependence and physical dependence, especially when relief of pain is concerned, but insofar as this can be done we would say that the patients discussed in this paper exhibited both characteristics. They were dependent on ergot for the relief of pain, and, probably because of this, a conscious emotional dependence on the medicament developed. We have not evaluated in this paper the role of psychological factors in producing dependence on ergotamine. This problem is now under study and will be reported on later. However, it has been suggested that the premorbid personality is a decisive factor in drug addicts. It is still not known to what extent anxiety and other emotions increase or provoke the physiological symptoms associated with drug addiction.

In considering the effect of ergot on the blood vessels, a sequence of physiological changes occurs that may explain the phenomenon of increased frequency of migraine attacks associated with the increased use of the drug, without necessarily invoking the question of addiction. Ergot produces a powerful vasoconstriction. It may be that after the constrictor effect wears off, a powerful rebound phenomenon of acute dilatation occurs, resulting in pain and requiring further ergot to constrict the vessels and reduce the amplitude of pulsation. Thus a cycle of dilatation and pain, followed by constriction caused by ergot and relief from pain may be the physiopharmacological cause of the phenomena under discussion. In addition it is possible that ergotamine might produce a sensitization of the cranial arteries and increase their susceptibility to stimuli, which would produce vasodilatation. These possibilities may be quite independent of the question of tolerance and addiction, or in fact may well be part of such phenomena. Dreisbach [18] in a paper written 15 years ago reported that headache could be induced when, after excessive use, caffeine is withdrawn suddenly. He names this a "caffeine withdrawal headache." As caffeine and ergot have similar constricting effects, it is not at all unlikely that the rebound headache produced by the withdrawal of caffeine is similar to the headache induced by the withdrawal of ergot. Regardless of the ultimate explanation, practical considerations and conclusions must be faced.

CONCLUSIONS

Ergotamine therapy still remains the treatment of choice in migraine. However, it seems clear that there are certain dangers associated with the use of this medicament. The cases reported here indicate that there is an additional danger not included in the well-known but infrequent toxic effects of ergot. This danger seems to lie in an evocation of a medical paradox. Namely, in some patients the use of ergotamine relieves the headaches for which it is administered but at the same time leads to an increased frequency of these headaches. This increased frequency must be related to the development of tolerance by the patient to ergotamine. The question of the possible addiction or habituation to ergotamine should be further investigated, and, if this is proved to exist, adequate warning must be sounded.

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DEMONSTRATION OF FUNGI BY PERIODIC ACID–SCHIFF STAIN IN PULMONARY GRANULOMAS

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The periodic acid–Schiff stain is one of the most valuable methods now available for the demonstration of fungi in tissue.[1] In our hands this method has proved superior to the routine hematoxylin and eosin stain for this purpose, and on more than a few occasions it has permitted us to demonstrate the presence of pathogenic fungi that were invisible in routine sections. Because of the failure of this staining method to win widespread acceptance, we are prompted to cite additional instances in which a correct diagnosis was not made until the periodic acid–Schiff stain was used. We are convinced that wider use of this method in the study of bacteriologically negative tuberculomas and nonspecific pulmonary granulomas will result in an increase in frequency of identification of the deep mycoses. The development and the various applications of the periodic acid–Schiff stain have been described in detail by Gomori.[2] The technique was reported independently by Hotchkiss[3] and McManus[4] in 1948 and was referred to initially as the Hotchkiss-McManus stain. Since McManus had suggested the use of this method two years earlier,[5] the more appropriate eponymic designation would be the McManus stain. In current usage, however, it is becoming more commonly known as the periodic acid–Schiff stain.

This stain is based on two fundamental chemical reactions. The Schiff reagent, which is a decolorized form of basic fuchsin, will combine with practically all aldehydes to yield intense red addition compounds. Secondly, although most tissues ordinarily contain insufficient aldehydes to produce such a reaction, various carbohydrates, glycolipids, and mucopolysaccharides, such as mucin, mucoproteins, and glycoproteins, can be oxidized to aldehydes by periodic acid. While in no manner specific for fungi, some as yet unidentified substance present in the capsule or cell wall of many pathogenic fungi will stain varying shades of red or magenta when treated with the Schiff reagent after preliminary exposure to periodic acid. We use essentially the same procedure recommended by Kligman and Mescon,[1a] including a light green counterstain, which provides an excellent contrasting background. We have found it to be a dependable and highly satisfactory method.

One need not be expert in mycology to recognize the superiority of the periodic acid–Schiff stain over routine staining methods. The advantages of the method will quickly become apparent if it is given an adequate trial. The striking contrast between the organisms that are red and the background that is greenish-blue affords a means of scanning slides quickly under low and high-power magnification. Areas having a suspicious color can then be inspected more closely. As a consequence, the examination of biopsy and autopsy material is accomplished rapidly and thoroughly.

The orthodox hematoxylin and eosin stain suffers by comparison. In many patients, particularly those with overwhelming infections, the diagnosis can be well made by study of hematoxylin and eosin-stained sections. In patients with mild or healing stages of the deep mycoses, however, the fungi are apt to stain poorly or not at all. A few degenerated forms may take the stain, but their numbers are so few and their localization so small that the focus may escape detection. Unless a fungus infection per se were suspected and many sections screened for organisms, it is likely that most such cases would go unrecognized. This has been forcefully demonstrated by a review of bacteriologically indeterminate surgical lesions at the Veterans Administration Hospital, Oteen, N. C., a tuberculosis center where the so-called tuberculoma and nonspecific pulmonary granuloma are constantly recurring problems. The following two cases are representative examples of fungus infections not demonstrable in all studies other than the periodic acid–Schiff stain. They should help to dispel any persistent complacency about the adequacy of the usual cultural and histological methods in the diagnosis of the deep mycoses.

REPORT OF CASES

CASE 1.—On a routine chest roentgenogram taken Feb. 8, 1952, a 42-year-old white nurse was found to have a solitary nodule measuring about 2 cm. in diameter in the right midlung field. She remained asymptomatic for about three weeks, but then an acute upper respiratory infection developed, for which she was admitted to another Veterans Administration hospital. Her complaints consisted of chills, fever, malaise, right anterior pleuritic chest pain, and cough productive of purulent sputum. Her temperature on admission was 101.4 F. Physical findings were not remarkable. The sedimentation rate was 50 mm. per hour (Wintrobe), but other laboratory studies were normal. In

From the Veterans Administration Hospital, Oteen, N. C. (Dr. Peabody and Dr. Murphy); and Department of Medicine, Louisiana State University School of Medicine (Dr. Seabury).

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addition to the round density discovered earlier, chest roentgenograms disclosed an area of pneumonitis in the right lower lobe associated with a small fluid collection in the right costophrenic angle. Subsequent roentgenograms made during the next month showed progressive clearing, but the nodule remained unchanged. Her symptoms, meanwhile, subsided, and she was discharged March 21, 1952, pending the results of cultures of sputum and gastric washings for Mycobacterium tuberculosis. Although these were later reported as negative, the patient was

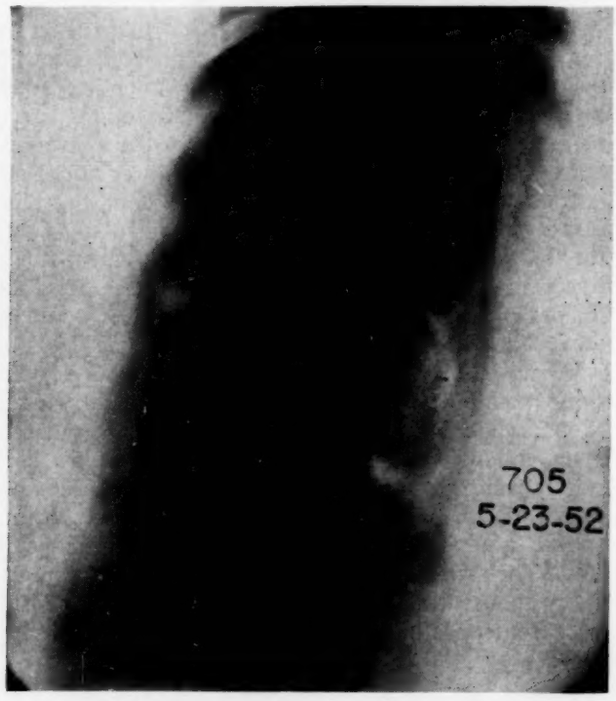

Fig. 1.—Planigram of patient in case 1 showing a circumscribed nodule in the superior segment of the right lower lobe. A small radiolucent zone is visible in the medial portion of the lesion. Prior to study with periodic acid–Schiff stain both the clinical and pathological diagnoses were tuberculoma.

readmitted to the hospital because of blood-streaked sputum and planigraphic evidence of excavation within the pulmonary nodule (fig. 1). Within two weeks, however, the nodule was again solid in appearance. A tuberculin skin test was positive, as it had been for the preceding seven years. Six gastric washings and one bronchial washing were negative for acid-fast bacilli. She returned to duty on June 8, 1952, and continued to work until admitted to the Veterans Administration Hospital, Oteen, N. C., on Feb. 9, 1953, for diagnostic studies.

She had remained asymptomatic. Chest roentgenograms showed the same nodule in the superior segment of the right lower lobe. Tuberculin (first strength purified protein derivative) and histoplasmin skin tests were positive. Repeated smears and cultures of the sputum were negative for acid-fast bacilli and fungi. In addition, nine gastric washings were negative for fungi. Nevertheless, since tuberculosis was considered the most likely possibility, therapy with streptomycin, 1 gm. twice weekly, and *p*-aminosalicylic acid, 12 gm. daily, was started on Feb. 18, 1953, and continued until Aug. 17, 1953. On April 14, 1953, the nodule was excised from the superior segment of the right lower lobe by wedge resection. Her postoperative course was uneventful, and she was discharged on Dec. 7, 1953. She continues to do well.

Grossly, the lesion was a hard, well-circumscribed nodule. On sectioning, a small central cavity was encountered, containing thick odorless pus. Microscopic examination was interpreted as showing a caseous nodule within a dense fibrous capsule. A spotty lymphocytic infiltration was noted beyond the fibrous tissue. No evidence of activity was noted and no organisms were seen either in hematoxylin and eosin or in Ziehl-Neelsen stains. Smear, culture, and guinea pig inoculation with the liquid contents were all negative for acid-fast bacilli and fungi. The final pathological diagnosis was tuberculoma. Reexamination of the specimen a year later with the periodic acid–Schiff stain showed myriads of typical Histoplasma organisms in the caseous center of the nodule (fig. 2*A*). At scattered points nests of organisms were found packing an occasional macrophage, but they also occurred extracellularly, both singly and in clusters. Review of the original and subsequent hematoxylin and eosin-stained tissue sections still failed to reveal diagnostic yeast forms anywhere within the zone of coagulation necrosis (fig. 2*B*). Diagnosis was changed to pulmonary histoplasmosis (histoplasmoma).

CASE 2.—A 39-year-old white male was admitted to the hospital on April 17, 1953, with the sole complaint of a roentgenographic density in the right lower lung field discovered in a routine preemployment chest roentgenogram one month previously. He was asymptomatic. The only illness he could recall occurred about three years prior to admission when he felt "pretty punk" for several weeks and experienced pleuritic pain beneath the right scapula accompanied by lassitude and persistent "cold." Physical examination was normal on admission. A chest roentgenogram revealed a round density just above the right leaf of the diaphragm (fig. 3). Tuberculin and histoplasmin skin tests were positive, but all other studies were negative, including repeated smears and cultures of sputum and bronchoscopic and gastric washings for acid-fast bacilli and fungi. The consensus was that this represented an indeterminate nodule, probably a tuberculoma, which should be excised. Accordingly, on June 4, 1953, a wedge resection was performed.

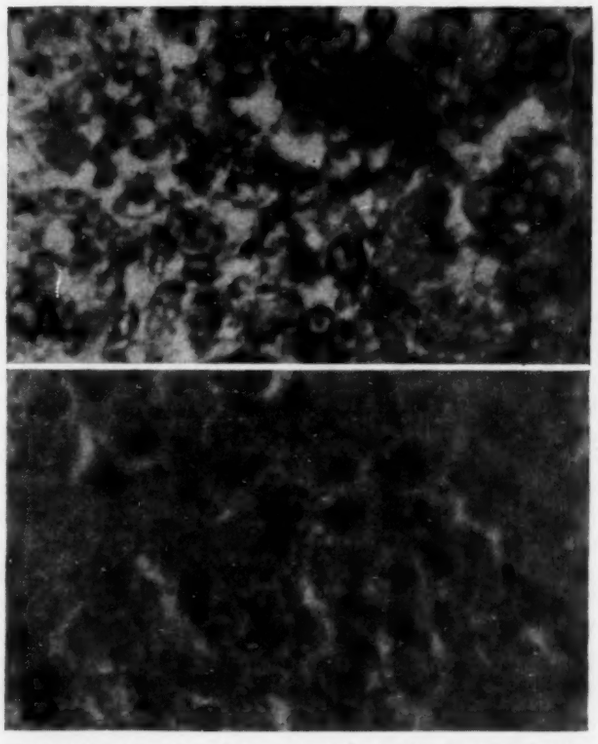

Fig. 2.—*A*, photomicrograph of periodic acid–Schiff stained tissue section from the nodule seen in figure 1 (× 1,650). Numerous typical Histoplasma organisms are present. *B*, hematoxylin and eosin-stained section of the identical area showing only coagulation necrosis (× 1,650). In contrast to the periodic acid–Schiff stained section, even the most meticulous examination failed to disclose any discernible organisms.

Grossly, the specimen consisted of a round, hard nodule from the right lower lobe, measuring about 3 cm. in diameter. On sectioning, a central caseous zone was noted. Microscopically it was described as a caseous nodule, with a well-formed capsule. There was no evidence of activity. Ziehl-Neelsen tissue sections were negative, as were smear, culture, and guinea pig inoculation. No fungi were noted in hematoxylin and eosin-stained sections. The diagnosis was tuberculoma of the lung.

The patient was given isoniazid, 300 mg. daily, for four months postoperatively. His subsequent course has been uncomplicated, and he remains in good health. About six months after his discharge from the hospital the embedded specimen was recut and stained by the periodic acid–Schiff stain method. As in the first case, the center of the lesion was packed with Histoplasma capsulatum (fig. 4). Again a meticulous reexamination of the hematoxylin and eosin sections failed to reveal recognizable organisms in the same areas where innumerable Histoplasma organisms could be demonstrated in the periodic acid–Schiff stained tissue sections. The diagnosis was changed to pulmonary histoplasmosis (histoplasmoma).

Fig. 3.—Enlargement of the right lower lung field of a chest roentgenogram of patient in case 2. A round density is visible just above the right leaf of the diaphragm. The clinical and pathological diagnosis was tuberculoma.

COMMENT

Here then are two patients with small, resected pulmonary lesions, grossly and histologically compatible with tuberculosis, in whom the diagnosis of tuberculosis had been readily accepted and prolonged antituberculous chemotherapy completed before the correct diagnosis was ascertained. The true diagnosis was established months later when the specimens were resectioned and stained by the periodic acid–Schiff technique. A great number of brilliantly stained Histoplasma organisms were then easily seen within the necrotic centers of these nodules. By contrast, even the most meticulous retrospective search of hematoxylin and eosin-stained sections with the oil immersion objective failed to disclose any diagnostic forms.

We agree that absolute diagnosis of the deep mycoses must be based on the results of culture or animal inoculation. With proper staining methods, however, certain of them can be rather surely diagnosed histologically. Coccidioides, for example, can usually be identified in microscopic sections, for, although they could conceivably be confused with Haplosporangium, there are as yet no recorded instances of haplomycosis in man. If many typical Blastomyces or Cryptococcus are seen, we feel that a histological diagnosis is justified. The same is true of Histoplasma.

Cases such as these illustrate the fallacy of resting the diagnosis of tuberculosis solely on the pathological characteristics of a lesion. Puckett [1g] has presented convincing proof that any type of granulomatous or caseous focus can be caused by histoplasmosis. The lesions may vary from a localized zone of pneumonitis to a solitary nodule or to a cavity with satellite tubercles. Each type of disease may contain typical Langhans-type giant cells. In comparable situations other fungi have likewise been incriminated.

The usefulness of the periodic acid–Schiff stain is by no means confined to foci of histoplasmosis. Such organisms as B. dermatitidis, Coccidioides immitis, Cryptococcus neoformans, Sporotrichum schenkii, and Candida all stain brilliantly. Filaments of Actinomyces bovis and Nocardia asteroides take the stain but are difficult to distinguish from reticulum, which also presents a Schiff-positive branching, filamentous appearance. For the demonstration of actinomycetes in tissue, therefore, the gram stain is generally preferable, although actinomycotic granules will stain well by the periodic acid–Schiff stain method.

With regard to the cases cited, it should be stated that H. capsulatum appears larger in periodic acid–Schiff stained sections than in hematoxylin and eosin sections owing to the fact that the organism's true capsule is really outside the clear halo seen in the hematoxylin and eosin stain. This halo was originally regarded as the capsule and was responsible for the designation, "capsulatum." It is now apparent that the true capsule of the Histoplasma was never really visualized in hematoxylin and eosin sections. Moreover, the popular conception that H. capsulatum grows only intracellularly is found by periodic acid–Schiff stains to be fictitious, for in each of these case reports the central zones of coagulation necrosis

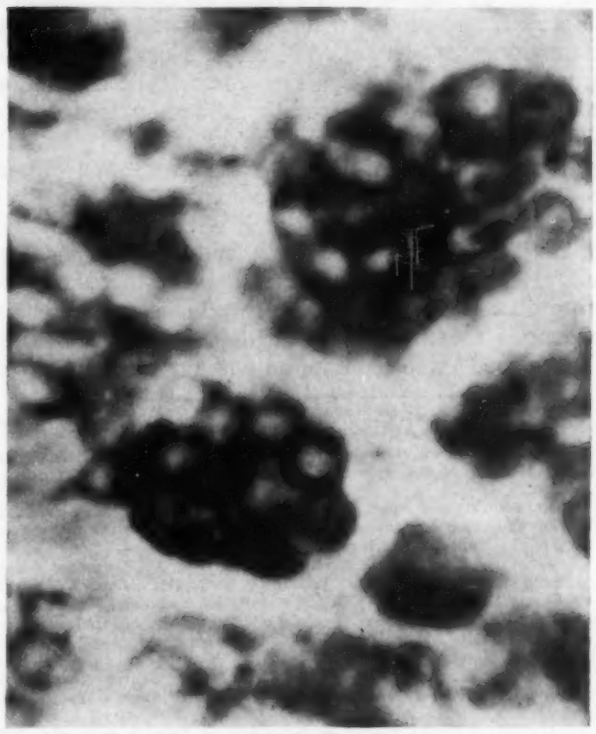

Fig. 4.—Photomicrograph of a tissue section from the nodule seen in figure 3. Periodic acid–Schiff stain (× 4,800). Many clusters of Histoplsma organisms are apparent, although their presence was not suspected after a careful examination of routine hematoxylin and eosin-stained sections. The brilliance of the organisms with this staining technique is not brought out in a black and white reproduction.

were literally packed with organisms, some intracellular but many extracellular in location. The fact that fungi frequently cannot be cultured from such lesions would seem to imply that these cases represent the healing phase of histoplasmosis. Consequently, the need for excising such mycotic foci stems more from their indeterminate radiographic character than from any hazard inherent in the lesion. Finally, in order to insure the correct interpretation of periodic acid–Schiff stained sections, it is important to realize that artefacts resembling yeast forms occur frequently. These have been well described by Puckett [18] and are usually rather easy to distinguish from true fungi, once experience with the stain develops.

SUMMARY

We have found that the periodic acid–Schiff stain is a most dependable and satisfactory method for the demonstration of fungi in tissue. From our experience with this stain we are convinced that the deep mycoses are commoner than is generally believed. This method should be more widely used, particularly in the diagnosis of so-called tuberculomas and nonspecific granulomas of the lung, for which routine hematoxylin and eosin stains are quite inadequate. In the two reported cases the patients had pulmonary tuberculomas in which innumerable Histoplasma capsulatum were demonstrated after routine staining and cultural studies proved negative.

ADDENDUM

Since this manuscript was submitted for publication there has appeared a corroborative study of the application of the periodic acid–Schiff stain in so-called tuberculomas of the lung.[6]

1150 Connecticut Ave. (6) (Dr. Peabody).

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UNUSUAL SYNOVIAL TUMORS

Commander Vernon E. Martens (MC), U. S. N.

This is a report of six unusual tumors that are thought to arise from synovial tissue. These cases fall into two main groups: malignant synoviomas, which usually arise around joints, and benign synoviomas. The correlation laid down by Jaffe and co-workers [1] and by Spencer and Whimster [2] was used in grouping the so-called giant cell tumor (xanthoma of tendon and bursa) and villous nodular synovitis as benign synovioma. The nosology of these lesions has been discussed by Wright,[3] Sabrazes and de Grailly,[4] Tillotson and others,[5] and Razemon and Bizard.[6] Historically it is of interest to note that the older writers used the terms myeloma, myeloplax, and sarcoma of tendon sheath to designate the benign synoviomas. Chassaignac,[7] who reported on a lesion in the thumb in 1852, has been given credit by various writers for reporting the first case of synovial tumor, but his description is more suggestive of granuloma than of neoplasm. In 1898, Venot [8] gave an excellent description of giant cell tumor of tendon sheath; he indicated that this lesion is derived from misplaced elements of bone marrow in soft tissue. In the same year, Marsh,[9] in describing a primary sarcoma of synovial sheath, gave an excellent description of villous nodular synovitis. Lejars and Rubens-Duval,[10] in 1910, first gave an adequate description of the fibroglandular appearance of a malignant synovioma and recognized its synovial origin. The term synovioma was brought into prominence in 1927 by Smith's report of three malignant lesions.[11]

The six cases of unusual synovial tumors reported on below were culled from the files of the Laboratory of Surgical Pathology of the U. S. Naval Medical School. From 1944 to 1954, this laboratory recorded 10 cases of malignant synovioma, 104 cases of giant cell tumor of tendon sheath, and 8 cases of villous nodular synovitis.

MALIGNANT SYNOVIOMA

CASE 1.—A 21-year-old man who first noted dysphagia in November, 1951, was found, in January, 1952, to have a firm mass in the left hypopharynx, partially occluding the larynx. Resection under general anesthesia was attempted, but the patient died before completion of surgery. At autopsy an encapsulated submucosal tumor mass, 6 by 2.5 cm., was found in the left hypopharynx. The tumor had impinged on the left aryepiglottic fold, distorting and displacing the glottic airway to the right (fig. 1 and 2). The cut surface was firm, yellowish-white, and nodular. Its histological appearance was typical of malignant synovioma. There were both glandular and sarcomatous areas scattered throughout the microscopic sections.

CASE 2.—An 18-year-old man had sudden sharp pain in the shoulder and noticed a hard lump over the medial end of the clavicle in January, 1946. At that time examination revealed a hard, smooth, oval mass, 4 by 6 cm., attached to the medial third of the left clavicle. Roentgenograms showed destruction of the medial end of the left clavicle and a pathological fracture. The left clavicle and a tumor were removed in March,

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Read before the Section on Pathology and Physiology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 23, 1954.

The statements and conclusions published by the author are a result of his own study and are not to be construed as reflecting the opinion or policy of the United States Navy.

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1946. Two subsequent operations were performed for local recurrence of the tumor, followed by roentgen ray therapy. The patient died in December, 1947; autopsy was not performed. There was an encapsulated tumor, 5.5 by 5.5 cm., in the sternocleidomastoid and pectoralis major muscles, invading the inner part of the left clavicle, including the sternoclavicular joint. Histologically the tumor resembled epithelioma or sarcoma; many slit-like spaces were visible on slides.

Synovial Tumors Reported in Files of Laboratory of Surgical Pathology, U. S. Naval Medical School, 1944-1954

Malignant Synovioma		Benign Synovioma: Giant Cell Tumor		Benign Synovioma: Villous Nodular Synovitis	
Knee	2	Finger	71	Knee	4
Thigh	2	Knee	9	Finger	3
Femur	1	Hand	8	Hip	1
Groin	1	Wrist	8		
Ankle	1	Toe	3		
Hypopharynx	1	Foot	3		
Clavicle	1	Elbow	1		
Forearm	1	Forearm	1		
Total	10	Total	104	Total	8

Case 3.—A 30-year-old housewife first noticed a lump in her left forearm in 1942; in August, 1943, there was adenopathy of the left axillary and cervical lymph nodes. An intrascapulothoracic amputation was performed in September, 1943. Shortly thereafter, metastatic nodules occurred superficially in the infraclavicular region, thorax, abdomen, and right shoulder, and a large mass occurred in the left upper quadrant of the abdomen. Roentgen ray therapy was given. The patient died in June, 1944; autopsy was not performed. A well-circumscribed tumor, 8 by 2 by 1.5 cm., was attached to the synovial sheath of the abductor pollicis longus muscle. The adjacent muscle was not invaded. Left epitrochlear and axillary nodes were enlarged by tumor infiltration. Histologically there were pleomorphic epithelial-type cells separated into lobules by thin bands of fusiform cells.

BENIGN SYNOVIOMA

Case 4.—In a 27-year-old veteran who noticed a lump in the left femoral triangle in January, 1953, a roentgenogram showed a bulge in the left psoas shadow and a soft tissue mass overlying the wing of the left ilium. Rarefaction of the left acetabular rim and head of the femur was apparent. In 1950 the patient had had a right thoracoplasty because of active

Fig. 1.—Gross specimen (right) removed at operation. Autopsy specimen (left) shows marked edema and distortion of hypopharyngeal structures.

pulmonary tuberculosis. On Feb. 10, 1953, during exploration, a large cystic mass was found beneath the psoas muscle extending into the left hip joint. On March 11, 1953, an arthrotomy of the left hip joint was performed. The synovial membrane, which was hypertrophic, partially replaced the cartilage of the acetabulum. The head of the femur also showed invasion by yellowish-brown fatty tissue. There had been no recurrence of tumor one year after operation. The tissue removed at both operations was friable and yellowish-brown. Its histological appearance was typical of villous nodular synovitis; there was a nodular pattern, and a large number of foam cells were present, in addition to pigmented macrophages.

Case 5.—A 52-year-old man had noticed stiffness, pain, and swelling of the left third finger in March, 1953. On Sept. 25, 1953, an irregular mass, 1.5 cm. in diameter, was removed from the flexor tendons of the middle phalanx of the left third finger. There was a recurrence of tumor within four months after operation. Grossly, the specimen was irregular, reddish-brown, and cystic; it contained a small amount of clear, viscous

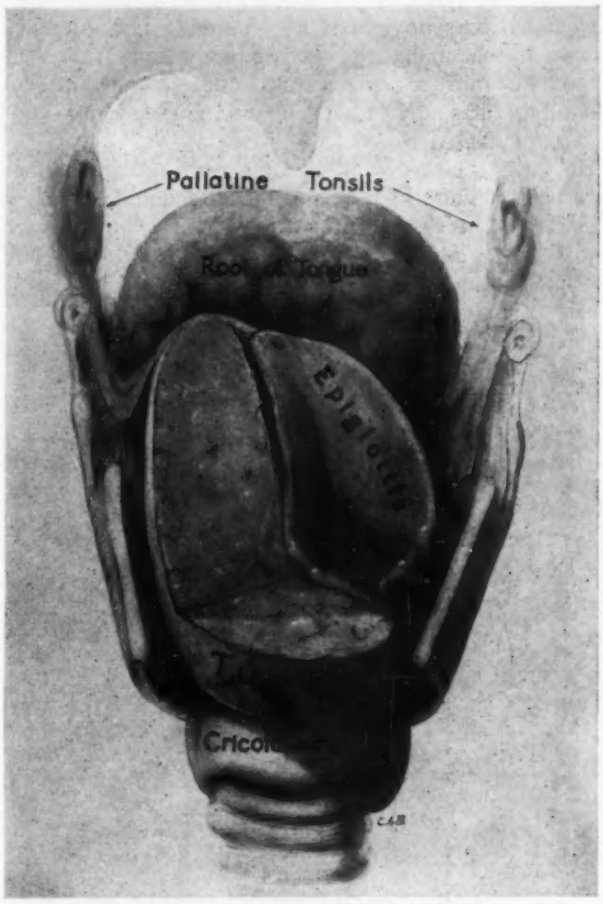

Fig. 2.—Diagram, posterior view, showing relationship of malignant synovioma to base of tongue and epiglottis.

fluid. On microscopic examination the tissue was seen to have a villous pattern; an abundance of collagen, a scattering of foam cells, and some pigmented macrophages were also apparent.

Case 6.—In a 29-year-old man who noticed a swelling in front of his right ear in April, 1950, examination showed a firm, well-circumscribed mass, 3 by 3 cm., in the preauricular area. The mass was not attached to the mandible, and roentgenograms of the mandible showed no bony involvement. On Aug. 23, 1950, the mass was resected and found to be attached to bone in the infratemporal fossa and to the capsule of the temporomandibular joint. There had been no recurrence of tumor four years after operation. The lesion was encapsulated and appeared to be a mixed tumor of the parotid gland. Microscopic examination revealed many multinucleated giant cells surrounded by cellular material (fig. 3).

COMMENT

A search of English and foreign literature failed to reveal a single reported case of malignant synovioma occurring in the hypopharynx. The histological appearance of the tumor in case 1 was typical of the fibrosarcomatous and glandular pattern of malignant synovioma. The lesion secreted a mucinous substance, as shown by *p*-aminosalicylic acid stains. Tillotson and others [5] have

suggested that tumors arising from the inner layer of synovial membrane have a sarcomatous and glandular pattern, while those arising from the outer synovial layer are purely sarcomatous. The pharyngeal location of this tumor, with its fibrosarcomatous and glandular pattern, contradicts that idea. Furthermore, from tissue culture studies [12] the synovial cell appears to be a specific type, designated as synovioblast by Vaubel.[13] The inference drawn is that malignant synoviomas distant from synovial tissue must be derived from undifferentiated mesenchyma that has at least partially differentiated into synovial elements.

In case 2, a synovial sarcoma occurred in another unusual location, the region of the medial end of the left clavicle; no other occurrences of the tumor in this area had been reported. The tumor in case 2, though it had slit-like spaces, did not have the typical glandular spaces

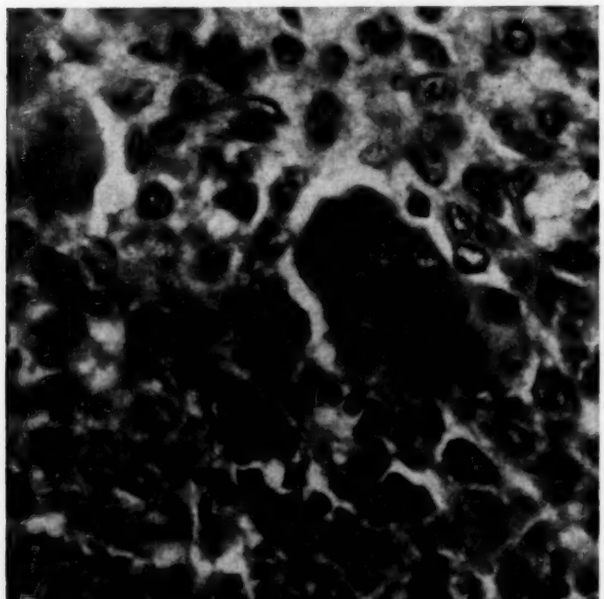

Fig. 3.—A multinucleated giant cell embedded in a very cellular stroma. Little intercellular matrix is noted (hematoxylin and eosin stain, × 120).

seen in the tumor in case 1; however, the location adjacent to the sternoclavicular joint was typical; most malignant synoviomas have been found to arise adjacent to, but not in, joints.[14] Para-aminosalicylic acid stains showed no formation of mucin by the tumor.

Surprisingly enough, the tumor in case 3, which apparently originated directly from synovial tissue, had a histological pattern less typical of synovial sarcoma than the pattern of the tumors in case 1 and case 2. Most of the tumor was composed of masses of pleomorphic epithelial-type cells separated into lobules by thin bands of fusiform cells. Multiple sections showed no glandular or slit-like areas, and, as in case 2, *p*-aminosalicylic acid stains showed no mucin.

Case 4 presented an interesting clinical problem. Because of the patient's history of previous active pulmonary tuberculosis, a provisional diagnosis of psoas abscess was entertained. A case similar to this one was reported by Weisser and Robinson [15] in 1951. The extensive invasion of this lesion along the psoas muscle gives the impression that the villous nodular synovitis is a true tumor rather than a granuloma.[16]

The tumor in case 5 had a location common to giant cell tumor of tendon sheath; however, according to my experience, the villous pattern of the lesion is not commonly seen in the giant cell tumors. This arrangement has been described in the evolution of giant cell tumors, which Jaffe and others called pigmented nodular tenosynovitis. The occurrence of giant cells, foam cells, and hemosiderin macrophages in a fibrillary or hyaline matrix is common to both the villous nodular synovitis of joints and the giant cell tumors of tendon sheath. It is suggested that location is the only difference between these two lesions. The tenosynovial lesions, commonly located in fingers and toes, are usually diagnosed and removed early; the joint lesions, because of location, usually receive definitive therapy after more extensive growth has occurred.

Another case of giant cell tumor was reported in the same area as in case 6 by Geschickter and others.[17] However, their lesion involved bone of the styloid process, whereas bone was not involved in my case. The histological appearance in case 6 is more characteristic of giant cell tumor of bone, as shown by the presence of many multinucleated giant cells and the absence of the eosinophilic ground substance so characteristic of tendon sheath tumors.[18] In case 6, a small spicule of bone was found in the deep part of the tumor. I believe that this bony formation is just another of the vagaries of mesenchymal tissue.

SUMMARY

Of six lesions of synovial origin characterized as unusual because of certain features of distribution or structure, two had the typical fibrosarcomatous and glandular pattern of malignant synovioma. Two tumors, one in the hypopharynx and another over the medial end of the clavicle, were the first reported in these areas. The tumor in case 3, although it originated directly from synovial tissue, was less characteristic histologically of malignant synovioma than was either the tumor in the hypopharynx or the tumor over the clavicle. Benign synovioma was considered to include villous nodular synovitis of joint; and giant cell tumor to include xanthoma of tendon sheath and bursa. A clinical picture of psoas abscess was simulated by a large infiltrating pigmented villous nodular synovitis of the hip joint. Another villous nodular synovitis occurred in the tendon sheath of the hand, the common location of giant cell tumors of tendon. A giant cell tumor attached to the capsule of the temporomandibular joint, although it did not involve bone, was more characteristic of giant cell tumors of bone than of giant cell tumors of tendon sheath.

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PERCUTANEOUS TROCAR (NEEDLE) NEPHROSTOMY IN HYDRONEPHROSIS

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and
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This paper describes indications for and the technique and results of trocar nephrostomy, performed by percutaneous lumbar tap of the renal pelvis with a large needle, followed by insertion of plastic tubing for temporary urinary drainage in selected cases of hydronephrosis. A previous paper [1] presented our experiences with antegrade pyelography, in which pyelograms were made by lumbar puncture of large hydronephroses followed by aspiration of urine and injection of a urographic contrast medium. The present study, trocar nephrostomy, was a natural outgrowth of antegrade pyelography.

TECHNIQUE

Lumbar tap of the hydronephrosis and insertion of plastic tubing is done with roentgenographic control with the patient under local anesthesia. The same precautions are observed as in performing spinal puncture. The patient lies prone. Preliminary x-ray films localize the approximate spot of puncture in relation to the landmarks of lumbar spine and vertebrae (fig. 1, inset). The skin is prepared with an antiseptic, and procaine infiltration anesthesia is used. The procedure should be limited to patients with large hydronephroses. The larger the hydronephrotic sac the easier it is to puncture. Ten, 12, or 14 gauge needles have been used. In most adults, a 12 gauge thin-walled needle, 6 in. (15 cm.) in length, seems to be optimum. Smaller needles have been used in children. On one occasion a bladder trocar was employed and a rubber catheter introduced; however, the smaller, 12 gauge needles cause less trauma, and drainage through the plastic tubing is usually satisfactory. After local infiltration anesthesia, the large needle is introduced through the lumbar area as indicated in figures 1 and 2. When the needle approaches the renal fossa, the obturator is withdrawn, and a long thin needle (such as that used in the Kreutzmann trocar for cystostomy) is introduced through the needle and into the hydronephrosis. When correct position is determined by appearance of a hydronephrotic drip of urine, the larger needle is advanced until it too enters the hydronephrosis. If at any time the operator is in doubt about position, x-ray control is indicated.

After the renal pelvis has been entered, the large needle is held in position by a needle stop. Polyethylene tubing.[2] is then introduced through it into the renal pelvis (fig. 2). Sizes of polyethylene tubing that will pass through needles of a given size are:

polyethylene 240	10 gauge
polyethylene 205	12 T gauge
polyethylene 190	14 T gauge

Before the tubing is inserted, additional lateral holes are made near the end by puncture with a hot needle. This makes several extra openings to increase urinary drainage. Approximately 2 to 4 in. (5 to 10 cm.) of tubing is allowed to coil in the renal pelvis, depending on the size of the hydronephrosis. The passage of this tubing through the long needle is very much like that described in femoral aortography.[3] Next the needle is removed and the tubing taped to the skin in such a way that it cannot be moved and will not kink. This may be done by supporting the tubing with a sponge at the skin level. It may be adapted to a collecting bottle by a Tuohy adaptor, or, if the patient is ambulatory, it may be connected to a rubber urinal on the leg.

RESULTS

This procedure was attempted 18 times in 16 patients as of June, 1954. In five of these patients the technique failed, either because of inability to enter the hydronephrosis or because of improper length of needles. In three cases there was a short period of drainage, from one to three days, without any benefit. In four further cases temporary nephrostomy drainage was later followed at intervals of from five days to two months by nephrectomy when it was determined that the kidney was not worth saving and that function would not improve with drainage. In four cases (two bilateral) it was used successfully for temporary diversion of urine in order to perform conservative surgery and preserve renal function. The procedure is most applicable in patients in whom it is desired to allow temporary drainage of a hydronephrosis to see if renal function will return sufficiently to allow conservative treatment (case 1) and in a second group of patients in whom temporary diversion is desired in order to perform some kind of restorative surgery of the lower urinary tract with the idea of later reestablishing normal drainage (case 3).

REPORT OF CASES

CASE 1.—A 1½-year-old child had bilateral hydronephrosis due to congenital ureteropelvic obstruction. When first seen by one of us (W. E. G.) on Dec. 21, 1953, he had an acute attack of abdominal pain and fever. An intravenous pyelogram (fig. 3*A*) showed right hydronephrosis and no evidence of function on the opposite side. An antegrade pyelogram (fig. 4*A*) demonstrated left hydronephrosis after an aortogram (fig. 3*B*) had shown that there was good blood supply to the left kidney. Bilateral pyeloplasties were indicated. It was decided to operate

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The needles used in this study were specially prepared and supplied by Becton Dickinson Company, Rutherford, N. J.

Case 2 is included with the permission of Dr. Robert C. Walter.

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on the right side first, but it was desirable to have continuous drainage on the left side while working on the right. On Dec. 28, trocar nephrostomy was done on the left side (fig. 4*B*). This allowed good drainage, and it was possible two days later to perform Davis' intubated ureterotomy on the right side with the advantage of continued drainage from the left side during the postoperative period. A phenolsulfonphthalein test on Jan. 5 showed 26% excretion from the right and 20% excretion from the left kidney in two hours. The patient went home from Jan. 9 to March 7, 1954, with nephrostomy drainage from the left trocar nephrostomy and drainage from the splints of the Davis' intubated ureterotomy. He returned to the hospital March 7. A repeat phenolsulfonphthalein test on March 9 showed 26% excretion in two hours from each side, an improvement in function on the left. A retrograde pyelogram made at this time showed considerable improvement in the left hydronephrosis. The trocar nephrostomy fell out and could not be replaced on March 11. On March 12, a Culp-Scardino type of pyeloplasty was done on the left side. In this case trocar

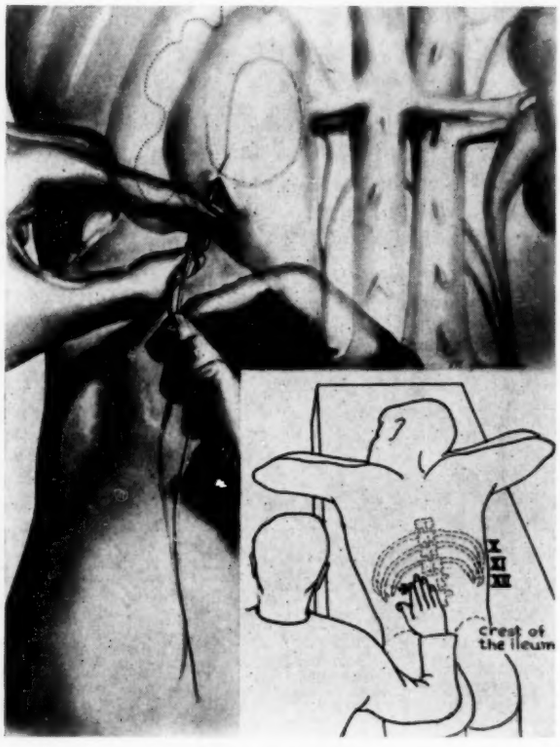

Fig. 1.—Method and landmarks of percutaneous trocar nephrostomy. Optimum site of puncture is usually about five fingerbreadths lateral to the midline and at a level where a 13th rib would be.

nephrostomy allowed continuous drainage for almost nine weeks in a child and obviated the necessity for another surgical operation to perform left nephrostomy during this period. Follow-up intravenous urograms and normal urinalyses showed a good end-result.

Case 2.—A 12-year-old boy had had previous surgery elsewhere. There was a draining urinary sinus from the right flank, and intravenous pyelograms revealed a nonfunctioning right kidney. An antegrade pyelogram demonstrated right hydronephrosis with obstruction at the ureteropelvic junction. It was determined to divert the urine to see if renal function would improve. This was carried out by trocar nephrostomy with the patient under local anesthesia on Nov. 16, 1953. There was satisfactory drainage while he was at home for two weeks. His fever subsided, the sinus closed, and he gained weight. It was hoped to save the kidney; however, a phenolsulfonphthalein test showed only 4% excretion in two hours; therefore, nephrectomy was performed on Dec. 2. This illustrates the usefulness of the procedure to allow temporary drainage while waiting hopefully for return of function.

Case 3.—A 54-year-old woman had a radical hysterectomy in September, 1953, because of squamous cell carcinoma of the uterus. She later developed a vesicovaginal fistula and a right ureterovaginal fistula. It was decided to close the vesicovaginal fistula and to deal with the right kidney at a later date. In order

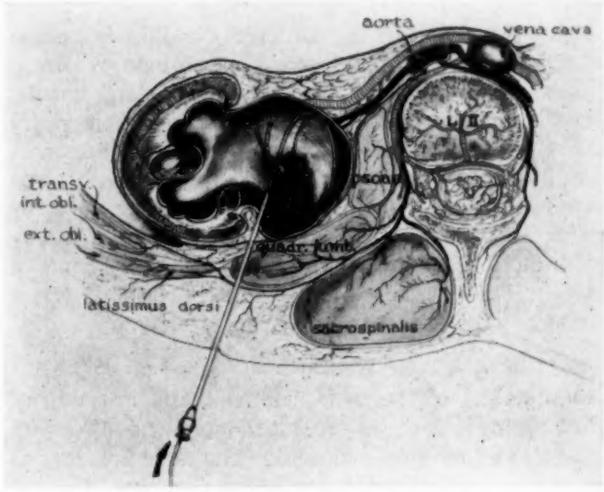

Fig. 2.—Cross sectional anatomy of left renal area (after Brödel). About 2 in. of tubing is allowed to coil in the hydronephrotic pelvis.

to divert the urine from the hydronephrotic, obstructed right kidney, translumbar needle nephrostomy was performed on Dec. 2, 1953. In the immediate period after this operation there was some bloody drainage and obstruction of the tubing by clots. A solution of streptokinase-streptodornase was introduced and allowed to remain in the renal pelvis. The clots apparently dissolved, and subsequent drainage was satisfactory. Reduction of the hydronephrosis followed. The vesicovaginal fistula was repaired with the use of the vaginal approach on Dec. 15. Drainage was continued from the polyethylene nephrostomy tube for five months. On March 23, 1954, when the right upper tract seemed nearly normal and the vesicovaginal fistula was well healed, an isolated loop of ileum was substituted for the destroyed lower third of the right ureter.[4] The polyethylene nephrostomy tube was still in place and continued to divert

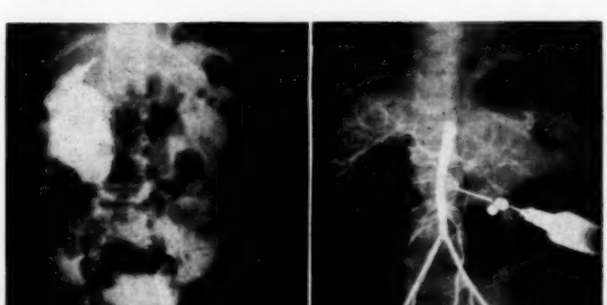

Fig. 3.—*A*, intravenous pyelogram of patient in case 1. *B*, aortogram.

urine during the postoperative period. Finally, on May 5, the tubing was removed from the right kidney, after five months, and the sinus promptly closed. It was of interest that there was no incrustation of the tubing with salts, and it acted very satisfactorily as a nephrostomy during this long period. On May 14 an intravenous pyelogram showed good function of both kidneys, with slight bilateral hydronephrosis. Blood chemistry studies were within normal limits. This case illustrates the ad-

4. Baum, W. C.: Use of Terminal Ileum as Substitute Bladder, J. Urol. 72: 16-33 (July) 1954.

vantage of trocar nephrostomy as a temporary but effective diversion of the urinary stream while plastic surgery is performed lower in the urinary tract.

INDICATIONS

From the above examples it seems that the procedure is of greatest use in cases of large hydronephroses when a temporary diversion of the urinary stream, without open operation, is required before definitive surgery at a later date. The temporary diversion may be for the purpose of doing plastic work on the lower urinary tract (case 3), or

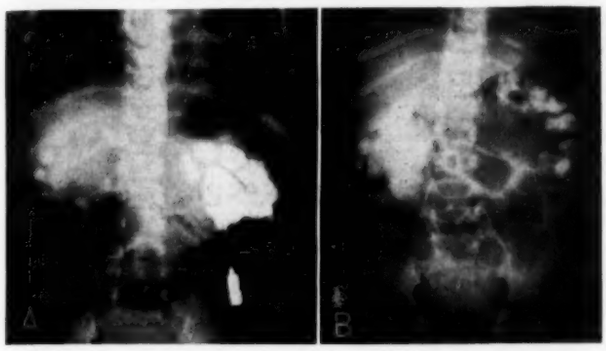

Fig. 4.—*A*, antegrade pyelogram of patient in case 1. *B*, polyethylene tubing coiled in left renal pelvis after trocar nephrostomy.

it may be to allow return of function while working on the opposite side (case 1). It may also be used as a test of function in cases of hydronephrosis when it is uncertain whether or not the kidney is worth saving. It may be employed to afford temporary drainage when the surgeon ordinarily would not subject the patient to an extra operation for this purpose.

Percutaneous trocar (needle) nephrostomy in cases of hydronephrosis may not appeal to some surgeons. Perhaps they will consider using it in conjunction with open surgery.[5] After surgical exposure of a hydronephrotic kidney, nephrostomy or pyelostomy may easily be established by needle puncture of the renal pelvis with insertion of polyethylene tubing, possibly in several different areas to allow multiple drainage without actually mobilizing the kidney and subjecting it to the trauma often associated with manipulation for nephrostomy drainage.

COMPLICATIONS AND DANGERS

The following complications should be considered: infection, hemorrhage, obstruction of the tube, kinking of the tube, inadequate drainage, and intermittent obstruction. Contraindications are: uremia, bleeding tendency, tuberculosis, and neoplasm. When this paper was presented we had not seen severe or dangerous infection following the track of the tube even in cases in which the urine was known to be infected. Weyrauch [6] called attention to this danger after trocar cystostomy and feels that potential infection without adequate drainage offers one of the most serious condemnations of trocar nephrostomy. This complication has happened in the experience of a colleague since this paper was presented. A polyethylene nephrostomy tube, which had been inserted via trocar, drained poorly and finally slipped out. Emergency surgical nephrostomy was then necessary, and the perinephric area contained a urinary abscess. This should be borne in mind by anyone who would attempt it.

The possibility of severe hemorrhage certainly exists; however the fact that anatomically there are no vital structures between the skin of the back and the renal pelvis, except the kidney itself, makes this unlikely. It seems possible that large renal vessels have been punctured at one time or another. On one occasion arterial bleeding from the 12 gauge needle caused some alarm. It did not persist, however, after plastic tubing was inserted. This kidney drained intermittently, partly because the tubing was coiled and kinked upon itself. Nephrectomy was later performed because the chronically scarred and infected hydronephrotic kidney was not worth saving in the presence of normal renal function on the opposite side. This allowed an opportunity to examine the kidney after needle nephrostomy and to see how much damage had been done. Figure 5 is a photograph of the specimen. The polyethylene catheter was coiled in the upper calyx and was somewhat kinked upon itself. This probably explained the poor drainage. There were ecchymotic areas in the epithelium of the upper calyx but very little evidence of any severe bleeding within the kidney itself. There was no sign of gross infarction and no sign of subcapsular bleeding. This would tend to minimize the fear of hemorrhage, although it must always be borne in mind. In any nephrostomy, the possibility of hemorrhage exists, yet the skillful surgeon has no fear of placing a large catheter or clamp through the renal substance. The renal capsule itself seems to limit hemorrhage. The problems of intermittent obstruc-

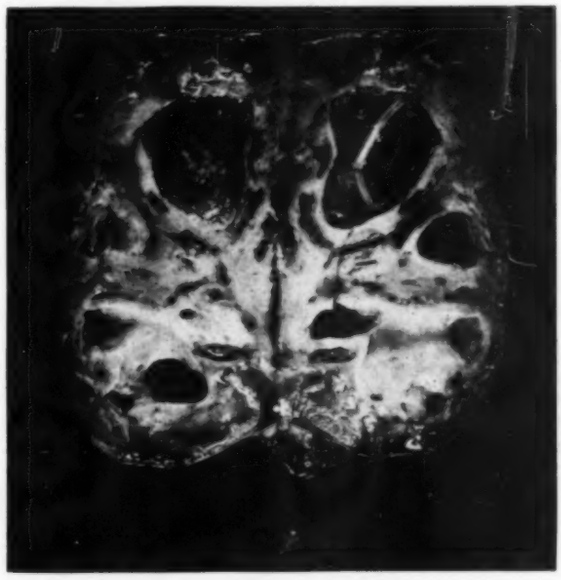

Fig. 5.—Hydronephrotic kidney removed after five days of trocar nephrostomy drainage. Note tubing in upper calyx and kinking of tubing that interfered with drainage.

tion and poor drainage due to kinking of the tube, inherent in any nephrostomy, are exaggerated by trocar nephrostomy. This is due to the small caliber of the polyethylene tubing and its tendency to bend. It is also magnified by the worst defect of the procedure, its blindness. Even at best one must guess as to position and

5. Schinagel, G.: Trocar Nephrostomy, J. Urol. **62**: 286-291 (Sept.) 1949.

6. Weyrauch, H.: Personal communication to the authors.

ability of the tube to drain during the first few hours after nephrostomy by this method. All these difficulties are less in large hydronephroses. When trocar nephrostomy works, it works very well indeed.

Admittedly the experience of this first study is so limited that it is impossible to tell how serious and how frequent complications may be. As noted in the Results, the procedure failed five times because of technical difficulties. Some moribund patients died within 24 to 72 hours after trocar nephrostomy and were examined at autopsy. It seemed that these persons died of uremia, which existed and was progressive before trocar nephrostomy was performed as a last effort without any real hope that it would change the prognosis. There was no indication from the pathologist's examination that trocar nephrostomy had contributed to death. Other patients died weeks or months later of other causes. There was no indication in these patients that nephrostomy had contributed to the patient's death; however, a large series would have to be collected to determine morbidity and mortality, if any, from this procedure.

CONCLUSIONS

Trocar nephrostomy may be a useful method of temporary urinary diversion in selected cases of large hydronephroses. Further evaluation of this technique is warranted.

University of California Medical Center (24) (Dr. Goodwin).

LATE SYSTEMIC COMPLICATIONS OF HYDRALAZINE (APRESOLINE) THERAPY

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and
Edward S. Orgain, M.D., Durham, N. C.

During the administration of hydralazine (Apresoline) for the treatment of hypertension, a significant number of interesting and important but poorly understood reactions to the drug have been described. These reactions include significant fever occurring one to three weeks after the onset of therapy,[1] pancytopenia,[2] acute psychoses,[3] gastrointestinal bleeding,[4] and a collagen-like illness.[5] In its milder form, the collagen-like illness resembles acute rheumatoid arthritis and subsides promptly in most instances when the drug is withdrawn. In severer form, the occurrence of fever, arthralgia, pleurisy, pericarditis, and L. E. cells suggests an illness that closely simulates acute systemic lupus erythematosus. The purpose of this paper concerns the report of seven patients with hypertensive vascular disease in whom this collagen-like illness developed while they were receiving hydralazine. Until the genesis of this syndrome becomes more clearly understood, the term "hydralazine reaction" will be used in preference to the ill-defined phrase, collagen-like illness.

From the Department of Medicine, Duke University School of Medicine, and the Cardiovascular Service, Duke Hospital.

Dr. Wayne Rundles of the Department of Hematology, Duke University School of Medicine, aided in the interpretation of the bone marrow aspirations and the paper electrophoresis for this study.

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4. Wilkins, R. W., and Judson, W. E.: Problems Arising from the Use of Hypertensive Drugs in Hypertensive Patients, Tr. A. Am. Physicians **66**: 175-189, 1953. Mandelbaum, H.; Brook, J., and Mandelbaum, R. A.: Bleeding Peptic Ulcer Complicating Hydralazine and Hexamethonium Bromide Therapy, J. A. M. A. **155**: 833-835 (June 26) 1954.

5. (*a*) Dustan, H. P.; Taylor, R. D.; Corcoran, A. C., and Page, I. H.: Rheumatic and Febrile Syndrome During Prolonged Hydralazine Treatment, J. A. M. A. **154**: 23-29 (Jan. 2) 1954. (*b*) Perry, H. M., Jr., and Schroeder, H. A.: Syndrome Simulating Collagen Disease Caused by Hydralazine (Apresoline), ibid. **154**: 670-673 (Feb. 20) 1954. (*c*) Slonium, N. B.: Arthralgia, Headache, Prostration, and Fever During Hydralazine Therapy, ibid. **154**: 1419 (April 24) 1954. (*d*) Manter, W. B.: Late Reaction to Hydralazine (Apresoline) Therapy, New England J. Med. **250**: 835-836 (May 13) 1954. (*e*) Footnote 1.

Fifty-three patients received hexamethonium chloride and hydralazine simultaneously for periods of 4 to 23 months. After initial regulation of these drugs during hospitalization, patients were subsequently followed by their private physicians at weekly to biweekly intervals and in the outpatient clinic by us under conventional laboratory control at intervals of one to three months. During ambulatory treatment, the hydralazine reaction developed in 7 (13%) of the 53 patients (see table). There were five women and two men. The average maximum daily dosage for these seven patients was 446 mg., with individual variations from 300 to 600 mg. For the remaining 46 patients free of this reaction, the average maximum daily dosage was 475 mg., with variations from 100 to 1,100 mg. The average time from the beginning of hydralazine therapy until the onset of this illness was 10.3 months, the shortest time being 6 months and the longest 12 months. At the time symptoms appeared, the blood pressure was normal in four of the seven patients and only moderately elevated in the other three. All seven patients complained of aching, stiffness, and soreness of the involved joints. In two patients the complaints were symptomatic, without objective physical findings. In four patients there was soreness and periarticular swelling of the proximal interphalangeal joints of the fingers; two patients of this group had increased temperature and pain, swelling, and redness of the knees and ankles, and one of these had joint effusion. In one patient (case 1) a severer illness appeared that closely simulated acute systemic lupus erythematosus, the details of which are summarized in the first case report. The most frequent associated symptoms were: fever, four patients; sore throat, three patients; chills or chilly sensations, two patients; pleuritic-like chest pain, two patients; and general malaise, two patients.

Laboratory studies were obtained in five of the seven patients. In four patients the hemoglobin level fell 2 gm. per 100 cc. or more. In two patients a leukopenia, with

a white blood cell count of less than 5,000 per cubic millimeter, developed; in one of these (case 2) moderately severe depression of bone marrow function was manifested by a white blood cell count of 2,400 per cubic millimeter and anemia (hemoglobin level 8.8 gm. per 100 cc.). Bone marrow aspirations in this patient and one other patient (case 1) in whom a mild anemia developed were found to be intensely cellular. An abundance of normal erythroid and myeloid elements were present. However, abnormal mitotic figures were numerous, and there was some retardation in nuclear maturation. Cells resembling megaloblasts were not present. Small megakaryocytes were frequent; many showed platelet production. Plasma cells were numerous. In one patient (case 1), in whom peripheral blood values were essentially normal, there was a cellular marrow, with no maturation arrest. Proteinuria, hematuria, and cylindruria were not observed. L. E. cells were observed in two of the five patients. In these two patients, L. E. cells were present in moderate numbers and could be demonstrated without difficulty. Rosettes of leukocytes were not observed. In one patient (case 3) L. E. cells were still present in moderate numbers four months after the acute stage of the illness but were not present at the end of six months. Serum protein determinations were obtained in four patients; in two of these there was an increase in the globulin fraction to above 3 gm. per 100 cc. Paper electrophoretic studies in one of these two patients (case 1) revealed a reduction of the albumin content, a slight increase in the alpha$_2$ globulin, and a considerable increase in the gamma globulin. No proteins not normally found in the blood were identified.

After the withdrawal of hydralazine, symptoms subsided promptly in four of the seven patients. Two patients showed marked improvement when hydralazine was discontinued but continued to complain of intermittent joint aching for five and nine months, respectively, after the acute stage of their illness. One patient, who had the illness most closely resembling acute lupus erythematosus, responded to corticotropin (ACTH) and cortisone and has been asymptomatic for a period of three months since cortisone has been discontinued. Two of the seven patients have died, both from subarachnoid hemorrhage. In four patients, the hydralazine reaction suggested mild rheumatoid arthritis. The three remaining patients had varied clinical features, which are sufficiently interesting to warrant separate case reports.

REPORT OF CASES

CASE 1.—A 38-year-old man was admitted to Duke Hospital in April, 1953, because of persistent high levels of blood pressure. The arterial blood pressure at that time was 210/120 mm. Hg, and there were grade 2 retinal changes. The heart was normal size. Results of blood studies and urinalysis were normal; the nonprotein nitrogen level was 29 mg. per 100 cc., and the total serum protein level was 8.4 gm. per 100 cc., with an albumin fraction of 5.1 gm. per 100 cc. and a globulin fraction of 3.3 gm. per 100 cc. A teleroentgenogram and electrocardiogram were normal. Drug therapy with hydralazine and hexamethonium was begun, and doses were gradually increased until the patient was receiving 200 mg. of hydralazine and 2 gm. of hexamethonium per day. At the time of discharge, the patient's blood pressure averaged about 170/120 mm. Hg recumbent. Because of mild postural syncopal episodes, the dosage of hexamethonium was decreased to 1 gm. per day. Hydralazine dosage was gradually increased to 400 mg. per day by December, 1953. During this interval blood pressure was controlled at normal or slightly elevated levels.

On Feb. 26, 1954, the patient complained of soreness and aching in his shoulders, elbows, wrists, fingers, knees, and ankles of three weeks' duration and intermittent retrosternal chest pain of one week's duration. One week previously he had discontinued hydralazine but continued to take hexamethonium. There was prompt improvement in his joint symptoms, which again recurred after he reinstituted hydralazine. His local physician discontinued hydralazine therapy for the second time on Feb. 25, and the patient has not received hydralazine since that time. The blood pressure was 160/100 mm. Hg. The heart was slightly enlarged to percussion, and there was a loud pericardial friction rub present. Results of blood and bone marrow studies and urinalysis were normal. An L. E. cell preparation revealed a moderate number of L. E. cells. The electrocardiogram was normal. The patient was hospitalized elsewhere, and his arthritic symptoms and chest pain gradually subsided after several days.

He was readmitted to Duke Hospital on March 11, 1954, with fever and a pleuritic-type pain in the lower left posterior portion of his chest of one week's duration. Temperature was 99.86 F

Laboratory and Therapy Data in Four Patients in Whom Hydralazine Reaction Developed

Case No.	Sex	Age	Diagnosis	Treatment Before Onset of Symptoms, Mo.	Maximum Daily Dosage of Hydralazine, Mg.	Recumbent Blood Pressure at Onset of Symptoms, Mm. Hg	History and Physical Findings	Laboratory Studies	Follow-Up
4	F	47	Hypertensive cardiovascular disease	6	500	170/90	Stiffness in wrists and shoulders. Swelling of periarticular tissues of proximal interphalangeal joints of fingers.	Hemoglobin level 11.9 gm. per 100 cc. Initial diagnosis of rheumatoid arthritis. L. E. cell study not done.	Marked improvement. Still complained of aching in joints 9 months later.
5	F	50	Hypertensive cardiovascular disease	12	300	168/96	Fever, chilly sensations, sore throat, and arthralgia. Temperature 99.3 F (37.4 C). Periarticular swelling of proximal interphalangeal joints of fingers.	Hemoglobin level 12.1 gm. per 100 cc. Slight bone marrow depression. No L. E. cells.	Swelling subsided in several weeks. Still complained of aching in joints 5 months later.
6	M	42	Malignant hypertension	12	500	130/90	Generalized aching and stiffness of joints. Pain, swelling, effusion and increased temperature of knees.	Laboratory studies all normal one month later.*	Arthritis subsided in several weeks. No recurrence.
7	F	48	Hypertensive cardiovascular disease	12	400	160/90	Generalized aching and stiffness of joints. "Drawing sensations" of upper and lower extremities and back.	Laboratory studies not available.*	Patient died from subarachnoid hemorrhage several days after drug therapy was discontinued.

* Attended by local physician.

(37.7 C); blood pressure was 140/90 mm. Hg. The heart was enlarged to percussion, but no friction rub was present. Physical findings disclosed a pleural effusion at the base of the left lung. The hemoglobin level was 13 gm. per 100 cc.; the white blood cell count was 5,500 per cubic millimeter, with 6% eosinophils on differential count. An L. E. cell preparation on March 11, 1954, showed several questionable L. E. cells. A teleroentgenogram revealed enlargement of the cardiac silhouette and a left pleural effusion (fig. 1). An electrocardiogram showed T-wave

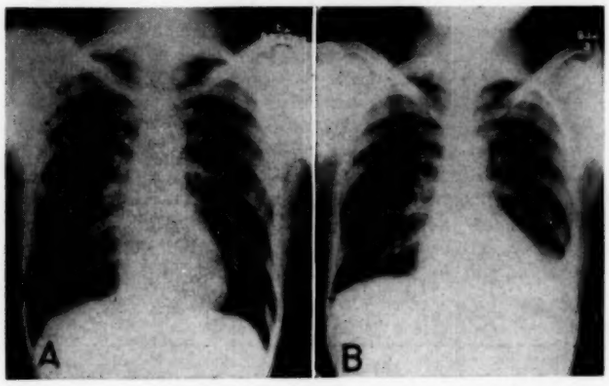

Fig. 1.—Teleroentgenograms of patient in case 1. *A*, normal chest prior to onset of hydralazine reaction. *B*, enlargement of cardiac silhouette and left pleural effusion during acute stage of hydralazine reaction.

inversion compatible with acute pericarditis (fig. 2). Tuberculin skin test, 1:1,000 dilution, was negative. Routine agglutinations were negative. Thoracentesis yielded 250 cc. of a straw-colored fluid. This fluid revealed a specific gravity of 1.022 and 5,000 white blood cells per cubic millimeter, with predominant mononuclear response. The serum protein level was 5.15 gm. per 100 cc. Routine and acid-fast cultures were negative. Intravenous therapy with corticotropin was administered for five days. Within 24 hours a feeling of well-being returned and the patient's temperature became normal. Therapy with orally given cortisone was substituted, and maintenance doses were prescribed on discharge. Two days after the patient's discharge, several episodes of chest pain, malaise, and aching occurred, which subsided with increased cortisone dosage. Cortisone dosage was gradually decreased and discontinued after a period of six weeks, without recurrence of further symptoms. On April 12, L. E. cell studies were negative, the electrocardiogram had reverted to normal, and a teleroentgenogram showed the heart to be normal in size. At the time of the patient's last visit on June 21, 1954, his recumbent blood pressure was 158/100 mm. Hg and he was asymptomatic. He is currently being observed without drug therapy.

Case 2.—A 38-year-old woman was admitted to Duke Hospital in November, 1952, because of severe hypertension of one year's duration. The blood pressure was 235/140 mm. Hg. There were grade 4 eyeground changes. The heart was slightly enlarged beyond the midclavicular line. The hemoglobin level was 12 gm. per 100 cc.; the white blood cell count was 6,100 per cubic millimeter, with a normal differential formula. Urinalysis revealed a trace of albumin and no concentration above 1.010. A phenolsulfonphthalein test showed 55% excretion in two hours. An electrocardiogram revealed the left ventricular strain pattern. A teleroentgenogram demonstrated cardiac enlargement. Therapy consisted of a rice diet combined with drug therapy consisting of hexamethonium and hydralazine. Progressive improvement was observed, and the patient continued on a regimen of 1 gm. of hexamethonium and 500 mg. of hydralazine per day. There was progressive clearing of the optic fundi, and the heart size and electrocardiogram returned to normal. The patient did not adhere strictly to dietary therapy and on Aug. 19, 1953, discontinued hexamethonium therapy. At that time hydralazine dosage was increased to 600 mg. daily.

The patient was readmitted to the hospital in December, 1953, stating that one week previously she had awakened with a sore throat, fever, and aching in her shoulders. During the next few days, aching subsequently developed in her wrists, hands, knees, and ankles. The temperature was 99.5 F (37.5 C); blood pressure was 130/80 mm. Hg. There was complete resolution of retinal changes except for residual scarring. The heart was normal; the spleen was palpable 2 cm. below the left costal margin. There was pain on motion of the shoulders, elbows, knees, and ankles and swelling of the periarticular tissues of the proximal interphalangeal joints. The hemoglobin level was 8.8 gm. per 100 cc., red blood cell count was 3,100,000 per cubic millimeter, and white blood cell count was 2,400 per cubic millimeter, with an essentially normal differential count. Platelets were present in normal numbers. Bone marrow aspiration revealed a cellular marrow, with some retardation in nuclear development. Results of urinalysis were normal except for a trace of protein. The total serum protein level was 7.5 gm. per 100 cc., with albumin fraction of 4.4 gm. per 100 cc. and globulin fraction of 3.2 gm. per 100 cc. The uric acid level was 4.2 mg. per 100 cc. L. E. cell preparation was negative. A teleroentgenogram and electrocardiogram were normal. After hydralazine therapy was stopped, the patient improved symptomatically but continued to complain of some aching in her joints. Close observation was maintained without drugs for a short period, during which time there was a progressive rise in the patient's blood pressure. Administration of rauwolfia (Raudixin) was added without significant change in her condition. In January, 1954, characteristic findings of subarachnoid hemorrhage suddenly developed and cerebral anteriograms demonstrated an aneurysm of the right middle cerebral artery. Shortly after this procedure, shock developed, and the patient died the following day.

Case 3.—A 42-year-old woman stated that at age 29, during her first pregnancy, hypertension and albuminuria had developed and she had aborted during the fifth month of gestation. In 1952 she was admitted to Duke Hospital because of a cerebral hemor-

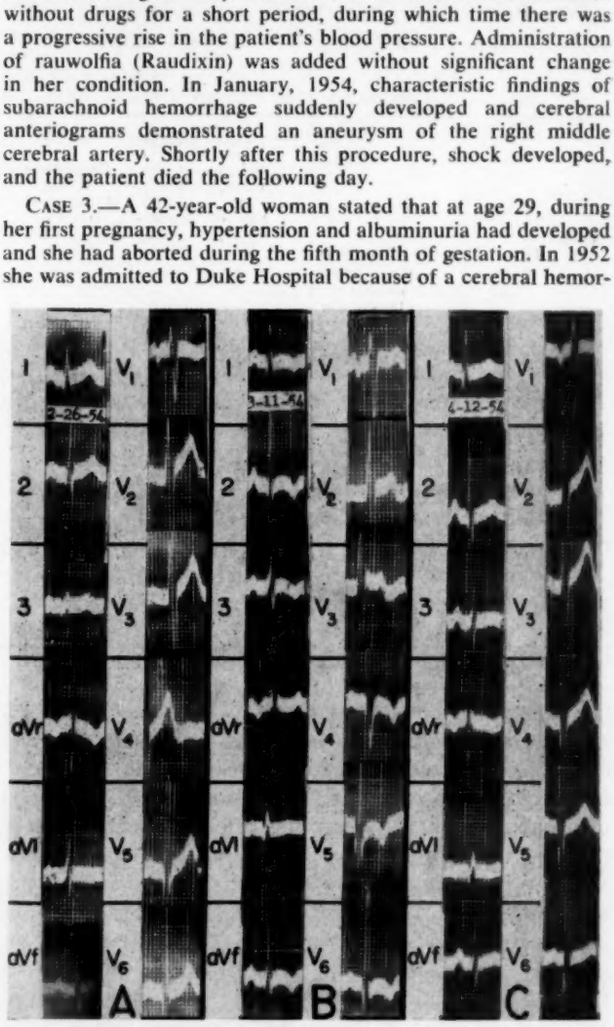

Fig. 2.—Serial electrocardiogram of patient in case 1. *A*, normal reading at onset of hydralazine reaction. *B*, abnormal reading 13 days later during acute stage of illness. Inversion of T_1, T_2, T_3, AVF, TV_4, TV_5, TV_6 compatible with pericarditis. *C*, reversion to normal after subsidence of hydralazine reaction.

rhage occurring five days previously. Physical examination revealed a blood pressure of 200/140 mm. Hg, grade 2 retinal changes, slight cardiomegaly, and a left hemiparesis. Combined drug therapy was instituted, and at the time of discharge she received a daily dose of 0.5 gm. of hexamethonium and 200 mg. of hydralazine. During the follow-up period as an outpatient almost complete clearing of her hemiplegia was noted. Because her blood pressure remained moderately elevated, vary-

ing from 155 to 200 mm. Hg systolic and 100 to 120 mm. Hg diastolic, hydralazine dosage was gradually increased, reaching a maximum of 425 mg. daily by May, 1953. In July, 1953, she complained of aching in her fingers, elbows, and shoulders of about two weeks' duration. The blood pressure was 180/120 mm. Hg, and there was slight but definite swelling of the proximal interphalangeal joints. At this time, hydralazine was not suspected as being the responsible agent, and the therapy with drug was continued.

The patient was readmitted to the hospital in September, 1953. Two weeks before admission, aching, swelling, and pain in the ankles appeared of severity sufficient to prevent her from standing. One day before admission, sharp, stabbing, pleuritic pain in the right anterior portion of the chest developed. Blood pressure was 140/85 mm. Hg, and temperature was 100.76 F (38.2 C). There was pain on motion of her shoulders, elbows, and knees. There was swelling of the periarticular tissues of the proximal interphalangeal joints. Pain on motion, swelling, redness, and increased temperature were noted in both ankles. The heart was normal; no pleural friction rub was evident. The hemoglobin level was 11 gm. per 100 cc., red blood cell count 4,300,000 per cubic millimeter, and white blood cell count 4,600 per cubic millimeter, with a normal differential count. Sedimentation rate was 55 mm. per hour; results of urinalysis were normal. The total serum protein level was 6.2 gm. per 100 cc., with albumin fraction of 3.5 gm. per 100 cc. and globulin fraction of 2.7 gm. per 100 cc. The uric acid level was 2.5 mg. per 100 cc. L. E. cell preparation demonstrated a moderate number of L. E. cells, but rosettes of leukocytes were not observed. An electrocardiogram and teleroentgenogram were normal. Roentgenograms of the patient's ankles demonstrated only soft tissue swelling. After hydralazine therepy was discontinued, rapid improvement of arthritic symptoms was observed, and during the next two months they completely subsided. Rauwolfia was administered simultaneously with hexamethonium, but with this therapy the patient's blood pressure gradually rose to levels of about 165/100 mm. Hg. However, in January, 1954, she was rehospitalized in the psychiatric ward because of symptoms of anxiety and depression. The hemoglobin level had risen to 13.4 gm. per 100 cc., the red blood cell count was 5,100,000 per cubic millimeter, and the white blood cell count 7,900 per cubic millimeter, with a normal differential count. L. E. cell preparation was still positive. The patient improved moderately during hospitalization, but symptoms of depression and anxiety soon returned after discharge. She was last seen March 27, 1954, at which time her blood pressure was 190/110 mm. Hg and an L. E. cell preparation was negative.

COMMENT

The causative role of hydralazine in the development of the hydralazine reaction seems well established by Perry and Schroeder.[5b] Hexamethonium, often used in combination with hydralazine, is not implicated. No comment was offered by these authors regarding the possible mechanisms involved. Dustan and associates suggest that, "while the type of drug reaction may represent a variant type of hypersensitivity state, the quantitative aspects of the data are consistent with the view that it is a toxic response to the drug as such."[5a]

Prolonged administration and doses of hydralazine large in comparison to those in common use are considered to be important in the genesis of the hydralazine reaction.[5a] This illness developed most commonly in our patients who were receiving amounts in the dosage range of 400 to 500 mg. of the drug per day (fig. 3). When compared with the average dosage for our entire group of patients who were treated with hydralazine, this amount is not excessive and constitutes an average dose of the drug. In accordance with previous observations, prolonged administration of hydralazine generally preceded the development of the hydralazine reaction. However, Schroeder and Perry have observed this illness in one patient after only two months of hydralazine therapy.[5b]

There is a striking clinical similarity between the hydralazine reaction, serum sickness, and the true collagen disease. Although the cause of the true collagen disease is not known, the studies of Rich have done much to suggest hypersensitivity as a possible mechanism.[6] There is good evidence that chemical substances may combine with body protein to form a complex possessing antigenic power.[7] In a susceptible person, the antigenic complex might then stimulate antibody formation and produce the clinical manifestations of the disease. The sulfonamides, as well as other drugs, have been observed to produce an illness that closely resembles serum sickness.[8] If administration of these drugs is continued, a fatal illness may result, showing lesions nearly identical to those of periarteritis nodosa.[6] Similarly, hydralazine might combine with body proteins and form an antigenic complex that then results in the clinical manifestations of

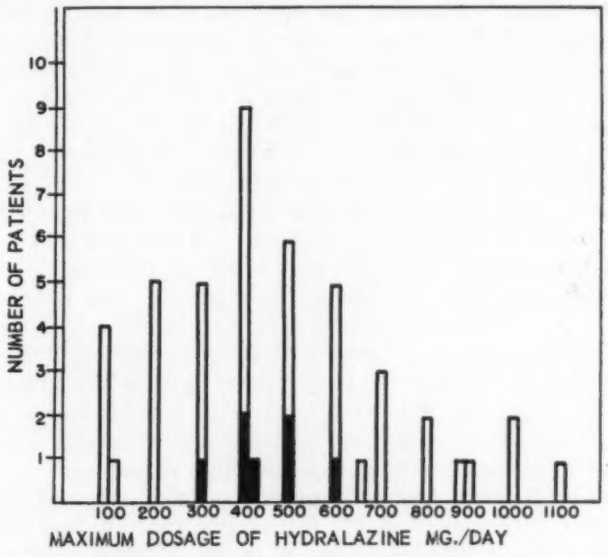

Fig. 3.—Relationship of drug dosage to the development of hydralazine reaction. White bars = patients remaining asymptomatic. Black bars = patients in whom hydralazine reaction developed.

this disease. Reinhardt and Waldron have reported pathological tissue changes in a patient during the acute stages of the hydralazine reaction that closely resemble those changes seen in the true collagen disease.[9] These tissue changes consist of a subcutaneous nodule, interpreted as a rheumatoid nodule, and acute collagenous necrosis of the skin. Shackman and associates have observed one patient during the acute stage of the hydralazine reaction in whom a false positive serologic test for syphilis developed that reverted to normal within a month.[10] The

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7. Landsteiner, K.: Serological and Allergic Reactions with Simple Chemical Compounds, New England J. Med. **215**: 1199-1204 (Dec. 24) 1936.

8. Hageman, P. O., and Blake, F. G.: A Specific Febrile Reaction to Sulfanilamide, J. A. M. A. **109**: 642-646 (April 28) 1937.

9. Reinhardt, D. J., and Waldron, J. M.: Lupus Erythematosus-like Syndrome Complicating Hydralazine (Apresoline) Therapy, J. A. M. A. **155**: 1491-1492 (Aug. 21) 1954.

10. Shackman, N. H.; Swiller, A. I., and Morrison, M.: Syndrome Simulating Acute Disseminated Lupus Erythematosus: Appearance After Hydralazine (Apresoline) Therapy, J. A. M. A. **155**: 1492-1494 (Aug. 21) 1954.

appearance of a false positive serologic test for syphilis is frequently seen in acute disseminated lupus erythematosus. The appearance of L. E. cells has been reported during acute systemic lupus erythematosus,[11] penicillin reaction,[12] and serum sickness,[12] as well as the hydralazine reaction. However, the presence of the characteristic L. E. cell in significant numbers is considered almost pathognomonic of acute systemic lupus erythematosus.[11] These similarities per se obviously do not implicate a common cause for these diseases but do suggest that there might be a relationship.

OBSERVATION OF L. E. CELLS

Perry and Schroeder observed L. E. cells in the blood of only one of their 17 patients in whom the hydralazine reaction developed.[5b] No comment is made as to whether these cells were observed in those patients who remained asymptomatic while receiving hydralazine. Dustan and associates observed L. E. cells in the blood of 2 of their 13 patients with the hydralazine reaction.[5a] While these two patients presented a severe form of the hydralazine reaction, L. E. cells were observed in the blood of one patient who was asymptomatic while receiving hydralazine. L. E. cell studies were obtained in five of our seven patients in whom the hydralazine reaction developed, and L. E. cells were demonstrated in two of these patients. In addition, L. E. cell studies were obtained in 21 of 47 patients who remained asymptomatic and were reported positive in 2 (10%) patients. In one patient a moderate number of L. E. cells were observed, but rosettes of leukocytes were not demonstrated. In the other patient there were large numbers of altered nuclei that were lying free and were not phagocytized. However, only very rare typical L. E. cells with phagocytosis of these altered nuclei were observed. Neither of these patients had any clinical evidence of systemic lupus erythematosus. Hydralazine was discontinued immediately in both asymptomatic patients. One can only speculate on the possible later development of the hydralazine reaction had the drug been continued. However, this observation suggests that L. E. cells can occur prior to the onset of clinically evident hydralazine reaction. Dustan and associates did not observe L. E. cells after the acute stage of the hydralazine reaction had subsided.[5a] Perry and Schroeder did not comment on the duration of L. E. cells in their patient.[5b] In one of our patients (case 1), L. E. cells had disappeared three weeks after the acute stage of the hydralazine reaction. In the other patient (case 3), L. E. cells were still present in moderate numbers four months after the acute stage of her illness but were not observed after an additional two months.

BLOOD AND BONE MARROW STUDIES

Kaufman has observed a pancytopenia after prolonged hydralazine therapy.[2] Mild depression of the peripheral-blood values has been found to accompany the hydralazine reaction rather frequently.[13] We observed a fall in hemoglobin level of more than 2 gm. per 100 cc. in 7 of 38 asymptomatic patients in whom the hydralazine reaction did not develop. These seven patients had severe vascular disease, and no conclusion can be drawn regarding hemoglobin reduction, since the disease process and hydralazine may be considered equally culpable. However, mild depression of peripheral-blood values were frequently observed in our patients in whom the hydralazine reaction did develop. In one patient (case 2) a severer depression of bone marrow function occurred. Sternal marrow aspiration in this patient revealed a cellular marrow with some retardation in nuclear development. This process is reversible, since the peripheral-blood values returned to normal after hydralazine therapy was stopped. The mechanism responsible for the bone marrow depression by hydralazine remains obscure. Kracke and Parker have emphasized the importance of drugs containing the benzene ring in their structure in producing granulopenia.[14] Because of the benzene ring structure of chloramphenicol, Smadel was concerned about the possible granulopenia that has been observed subsequently during the administration of this drug.[15] Likewise, the bone marrow depression observed during the administration of hydralazine may be related to the incorporation of the benzene ring in its structure. Contrary to the observation of Perry and Schroeder, hematuria and albuminuria were not observed during the acute phase of the hydralazine reaction in our patients.[5b]

EVALUATION

Hydralazine administered alone has proved only partially effective in the therapy of hypertension. The simultaneous administration of hexamethonium chloride and hydralazine, however, constitutes one of the most effective methods of therapy available for this disease. The development of the hydralazine reaction in a significant number of patients, which is mild and transient in most instances, yet alarming in its clinical manifestations in a few patients, poses a serious question regarding the continued general use of this drug for hypertension. In most instances reactions have appeared when the dose of hydralazine exceeded 400 mg. per day, administered for continuous periods beyond six months. When recognized early, the reactions have been mild and have subsided promptly when the drug was withdrawn. It seems reasonable therefore that hydralazine need not be prohibited in antihypertensive therapy, provided great caution is observed regarding drug dosage, duration of administration, development of clinical features of the hydralazine reaction (fever, arthritis, pleurisy, pericarditis), and alteration in laboratory studies (blood studies, urinalysis, electrocardiogram, and L. E. cell determination). In milder forms of hypertension the use of hydralazine does not seem warranted except when small doses provide adequate reduction in blood pressure. However, in severe hypertensive states, since the prognosis of the disease outweighs the morbidity and potential danger from hydralazine, the drug should not be withheld even in larger doses, provided satisfactory precautions outlined previously are maintained.

11. Dubois, E. L.: The Effect of the L. E. Cell Test on the Clinical Picture of Systemic Lupus Erythematosus, Ann. Int. Med. **38**: 1265-1294 (June) 1953.
12. Walsh, J. R., and Zimmerman, H. J.: Demonstration of L. E. Phenomenon in Penicillin Hypersensitivity and Serum Sickness, Clin. Res. Proc. **1**: 9 (April) 1953.
13. Footnote *5a* and *b*.
14. Kracke, R. R., and Parker, F. P.: The Etiology of Granulopenia (Agranulocytosis), with Particular Reference to Drugs Containing the Benzene Ring, J. Lab. & Clin. Med. **19**: 799-818 (May) 1934.
15. Smadel, J. E.: Chloramphenicol (Chloromycetin) in the Treatment of Infectious Diseases, Am. J. Med. **7**: 671-685 (Nov.) 1949.

SUMMARY

A hydralazine reaction (collagen-like illness) was observed in 7 (13%) of 53 patients who received hydralazine for periods of 4 to 23 months. In six patients this illness resembled rheumatoid arthritis and subsided when hydralazine was discontinued. In one patient a severer illness manifested by fever, arthritis, pericarditis, pleurisy with effusion, and the presence of L. E. cells developed. This illness closely simulated acute systemic lupus erythematosus and subsided only after hormonal therapy with corticotropin and cortisone. L. E. cell studies obtained in five patients with the hydralazine reaction revealed L. E. cells in two patients. L. E. cells were also observed in two additional patients who remained asymptomatic while receiving hydralazine. Depression of bone marrow function may occur during the administration of hydralazine and disappear on withdrawal of the drug. In view of the incidence and type of reactions resulting from hydralazine, administration of the drug probably should be reserved for patients with severer hypertensive states in which morbidity and mortality would overshadow any potential dangers resulting from effects of the drug itself.

Duke University (Dr. Orgain).

XERORADIOGRAPHY

John F. Roach, M.D.
and
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Some time ago, while attempting to make provisions for the medical aspects of civil defense for the state of New York, we were deeply concerned with the difficult problem of planning emergency radiological service. It is feasible to acquire and store x-ray equipment and electric generators designed along the lines of the military field type; these can be transported, assembled, and operated by relatively inexperienced persons. The inherent difficulties in the storage, transportation, and use of x-ray film for civil defense are apparent at once when one remembers that the radiant energy of an atomic explosion or its residual radioactivity is extremely destructive to the photosensitive emulsion of any type of film. One might consider the use of fluoroscopy alone and thus completely eliminate the x-ray film and darkroom problem. This, however, seems out of the question for several reasons, the most important of which is the fact that, even under ideal conditions, at the level of brilliancy available on a fluoroscopic screen the human eye is subject to such physiological limitations that one's diagnostic acumen is greatly impaired. Thus, pathological changes that are easily detected on a roentgenogram may be invisible on a fluoroscopic screen.[1] It was agreed that some method of x-ray image recording would be necessary. The Polaroid process was investigated, since it simplified so completely the processing of the radiogram. It was found, however, that the restricted resolving power of the Polaroid film, plus its relatively high cost and short shelf life, limited its possible usefulness in emergency hospitals near the bombed area.

In the fall of 1952, a process known as xerography was brought to our attention. A brief inspection of this method showed features that impelled us to make a careful study of its medical applicability.[2] Xeroradiography is totally different from conventional film recording, since it involves no chemical process. No solution of any sort is used, and thereby it derives its name from the Greek word *xeros,* meaning dry. It is photoelectric in nature and was first described, in 1937, by Carlson, a physicist. Since that time, the basic principle had found wide acceptance in the graphic arts, but it had not been used in medicine.

There is a group of materials known as semiconductors, whose physical properties are little known to many physicians. Ordinarily one thinks of materials as being electrical conductors or insulators, and one expects substances to be quite constant in their electrical behavior. The semiconductors, however, show unusual qualities in their variability in conducting an electric charge. At one moment the semiconductor may be a good conductor, and, at the next, it may be a good insulator. Radiant energy is capable of bringing about this change. Thus, a semiconductor in its natural state may have as high a resistance (10^{15} ohms-cm.) to the passage of an electric current as have many of the commonly used insulators. If the semiconductor in its natural state is then irradiated by electromagnetic waves of most wave lengths, including those in the visible and x-ray spectrums, the resistance temporarily drops by a ratio of as much as 1,000 to 1 only to return again to the original high level as soon as the radiation ceases. Selenium, in its elemental form, is only one of the many substances that possess these electrophysical properties, but it is this substance that so far has seemed most satisfactory for xeroradiography.

XERORADIOGRAPHIC PLATE

The xeroradiographic plate, which is the vital factor in the entire process, consists of a sheet of metal with a thin layer of selenium fused on one surface. The metal base plate serves a dual purpose; it provides mechanical support for the photoconductive selenium, and, at the same time, acts as an electrical reservoir into which an electric charge may flow. To give mechanical protection to the plate and to enclose the selenium surface in a light-tight container, it is encased within a wooden frame and metallic cover slide constructed along the lines of the conventional photographic film holder.

Professor of Radiology, Albany Medical College and Radiologist-in-Chief, Albany Hospital (Dr. Roach); and Professor of Preventive Medicine, Albany Medical College, and Commissioner, New York State Department of Health (Dr. Hilleboe).

Read before the Section on Radiology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 25, 1954.

1. Sturm, R. E., and Morgan, R. H.: Screen Intensitation Systems and Their Limitations, Am. J. Roentgenol. 62: 617-634, 1949.

2. Roach, J. F., and Hilleboe, H. E.: Xeroradiography, Am. J. Roentgenol. 73: 1-9, 1955.

To use the xeroradiographic plate, a charge is placed on the selenium surface by passing a group of wires, charged to a potential high enough to produce a corona about them, over the surface of the plate. This requires about 6,000 volts. The polarity and the geometric arrangement of the wires are such that the positive ions produced in the air are repelled by the wires and flow onto the surface of the selenium, where they deposit their

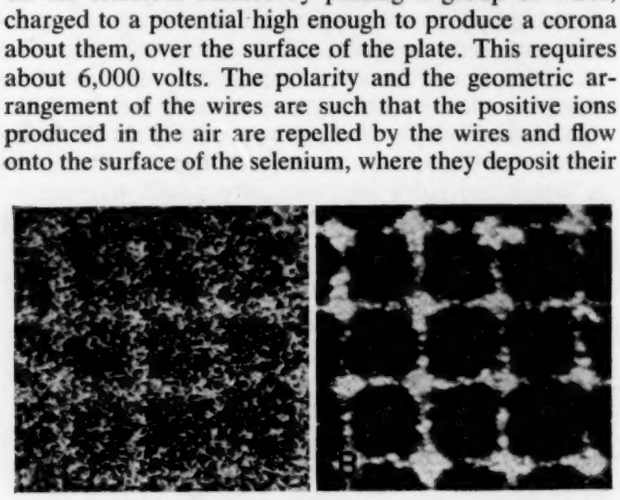

Fig. 1.—Photomicrographs (× 150) of roentgenograms of bronze mesh wire screening, 180 lines per inch. *A*, the image as recorded by standard x-ray film in a cardboard holder. *B*, the image on a xeroradiographic plate.

charge. During this plate-charging process, the charging wires and their supporting structures are mechanically moved over the surface of the plate to provide a homogeneous surface charge. If the plate is protected from radiation, its charge will remain for a period of several hours with slight decay, since in the resting state selenium is an excellent insulator. If the plate is irradiated, those particles of selenium that are struck by the radiation become conductive and the positive charges that they had held on their surface are conducted through the selenium to the metallic base plate, where they are homogeneously dissipated. Within certain practical limits, at any point the proportion of the total charge that is carried through to the base plate is a direct function of the quantity of radiation that strikes that point. It is readily seen that if an ob-

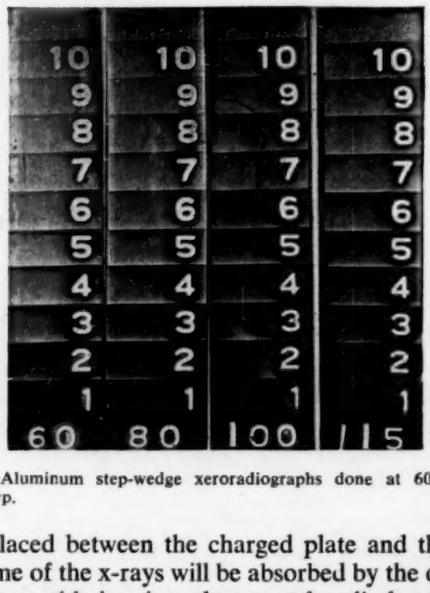

Fig. 2.—Aluminum step-wedge xeroradiographs done at 60, 80, 100, and 115 kvp.

ject is placed between the charged plate and the x-ray tube, some of the x-rays will be absorbed by the object in accordance with its size, shape, and radiodensity. The radiant energy that passes through the object will hit the selenium and dissipate its charge in conformance with the disposition and intensity pattern of the x-rays.

It follows then, that, at the completion of the x-ray exposure, a portion of the original charge will remain on the surface of the selenium and that this remaining charge will be in the form of an electric image representative of the size, shape, and varying radiodensity of the interposed object. The electric image becomes visible when one sprays on the surface of the selenium a fine powder, granules of which are contrasting in color to the black selenium background. During the spraying process, the power particles are electrically charged so that they have a charge opposite to that of the selenium. The result is that the negative powder particles are attracted to and held by the positive charges on the plate, and, at any given point, the quantity of powder deposited at that point is a function of the charge remaining at that point after the exposure to x-rays. At the completion of the spraying process, one has an etching-like image in black and white. This looks like a conventional radiogram from which one can make a radiological diagnosis.

FEATURES OF THE PROCESS

After the xeroradiographic plate has been viewed, one can make a permanent record by transfering the powdered image to paper by means of either an adhesive or

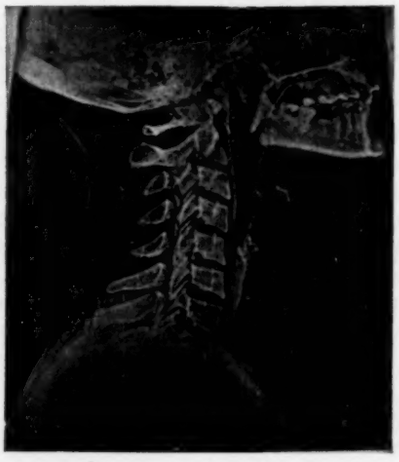

Fig. 3.—Xeroradiograph of the cervical spine.

an electrostatic technique. The selenium surface of the xeroradiographic plate is then cleaned by brushing with a rabbit's fur brush that effectively removes any residual powder. The plate is then ready for another cycle of charging, exposing, powdering, viewing, and brushing. If one uses ordinary care, this procedure can be repeated hundreds of times. Indeed, we attempted to wear out a plate but discontinued our efforts after 2,300 exposures. At the end of that time, it was noted that no perceptible change had occurred in the image recording power of the plate. The only significant change that had taken place was a mild abrasion of the selenium surface as a result of the repeated brushings. It would appear that a dozen xeroradiographic plates, which one person can easily hold within his two arms, is sufficient to supply a radiographic installation every day for a month at the rate of 1,000 exposures per day.

It is worth noting that the xeroradiographic process, in addition to the features mentioned above, is a very rapid procedure. It requires a total of 10 seconds to charge a plate and only 20 seconds to powder it. It is

thus easily possible to prepare a plate for exposure, expose it, and have the finished image for interpretation in less than 2 minutes. All the necessary equipment operates on 115 volt 60 cycle current. It is portable and requires no more space than is provided by the top of the usual hospital stretcher. Since the equipment is not damaged by primary or secondary radiation, it can be used within the ordinary radiographic room, provided one charges the xeroradiographic plate before each exposure.

Under certain circumstances, one might be willing to sacrifice the quality of an x-ray image to gain such properties as we have shown the xeroradiographic plates to possess. It is therefore most gratifying to find that the resolving power of the xeroradiographic plate is not less than that of conventional film but actually exceeds it. We have made x-ray images of test objects, such as fine wire screening, on both film and xeroradiographic plates. We find that when using the film in cardboard holders, one seriously loses definition as one approaches a mesh of 180 lines to the inch, whereas, at this mesh size, the grid pattern is very clear on the xeroradiographic plate. Indeed, it is xeroradiographically possible to record a test pattern as fine as 1,200 lines to the inch. This means that the xeroradiographic plate is inherently more capable of recording greater image detail than is standard x-ray film. The wide extremes of contrast that are available in x-ray film are not found in xeroradiographic plates. Step-wedge measurements show an easily detectable gradation of contrast over a wide range of voltage and wedge thickness. With the powder (calcium carbonate) that we are now using, one therefore obtains an image of low contrast. This is one in which, unlike conventional film, both the radiodense and radiolucent portions of the image are shown. Thus, if one makes an exposure of the skull and neck in the lateral projection, such widely differing structures as the skin, subcutaneous fat, laryngeal structures, cervical vertebrae, mastoids, and calvaria all are seen with clarity.

At the present stage of development, the speed of xeroradiographic plates leaves much to be desired. Our present plates are just a bit faster than film in cardboard holders. As a result, when one wishes to make xeroradiographs of the heavier parts of the body, such as the abdomen, pelvis, or spine, one must use an exposure considerably greater than is necessary to produce a satisfactory image of the same part on x-ray film when used with the conventional intensifying screens. It is, of course, desirable to reduce exposure to the patient to a minimum. We are striving to obtain xeroradiographic plates with an effective speed at least as fast as the speed of x-ray film in casettes with par-speed screens. From a physical point of view, there is no reason why this cannot be obtained. The plates now in use measure 9.25 by 14 in. Obviously, this is considerably smaller than is required for some examinations, such as those of the chest or abdomen. To date, no attempt has been made to produce a 14 by 17 in. plate, since the technical and clinical aspects of the process could be more easily studied with the smaller plate. Although the manufacture of the plates is a difficult procedure, size is not a critical element, and no difficulty along that line is anticipated. Although our initial interest in xeroradiography came about because of civil defense medical services, we have been impressed from the start with the possibility of using the method in routine clinical radiography. In the past nine months, we have conducted a clinical survey designed to provide statistical proof of the relative efficiency of xeroradiographs and standard roentgenograms. This study, which will be published shortly, shows a high degree of correlation between the two methods. The radiologist may soon have a powerful diagnostic tool that will enable him to serve patients with greater speed, economy, and precision.

MEDICAL SCHOOL SUPPORT AND THE PHYSICIAN

REPORT OF EXECUTIVE COMMITTEE OF UNIVERSITY OF BUFFALO ANNUAL PARTICIPATING FUND FOR MEDICAL EDUCATION

The future of medicine in America is intimately related to the support of medical education. This is not a dim prospect for the future but a present and pressing issue, the solution of which will have immediate effects. There are at least two paths: private support and governmental support. At the University of Buffalo School of Medicine, a privately supported institution, a somewhat unique approach to this urgent problem has been developed, based on the mutuality of university and community responsibility. The patterns of both medical practice and medical education are changing before our eyes. The very meaning of the terms private practice, part-time practice, full-time teaching, part-time teaching, research worker, and clinical investigation can be seen to be changing. Certain divisive forces within medicine (full-time versus part-time, government versus private, etc.) must begin to find common ground for peaceful agreement and restraint in regard to each other's responsibilities, rights, and privileges. Vigorous search for such common ground and mutual respect is an immediate necessity so that our problems of medical education and medical practice may find mature solutions.

PHYSICIAN PARTICIPATION AT BUFFALO

Medical education may be recognized as being as integral a part of the responsibility of the physician as is medical practice. Such responsibility is twofold: (1) all physicians must assume obligations in regard to medical education, and (2) the medical schools, in turn, must invite their interest and participation. At Buffalo participation in its broad sense has become the key word. Participation is more than donation. To us it has come to connote active interest of all physicians in the school of medicine and active participation in advisory groups.

The Executive Committee consists of Drs. Edgar C. Beck (Chairman), Marvin L. Bloom, Grant T. Fisher, Henry N. Kenwell, Stockton Kimball (Dean, School of Medicine), Harry G. LaForge, William J. Orr, and Talman W. Van Arsdale, Ph.D., Buffalo.

Such groups have been organized to permit officially recognized discussion of the needs and recommendations of the profession and the school. During the past year, we have formed an organization of physicians unique in many respects, which has been designated the University of Buffalo Annual Participating Fund for Medical Education. It was conceived as a local implementation of a national effort by the American Medical Association, but with wider implications.

Need for Support.—Our first goal has been the support of basic science teaching and basic science research. Our university has certainly not been alone in the United States in experiencing grave difficulties in providing adequate support for the basic science departments, whose mounting costs and expanding demands must be met. We have tried to help this private institution by supplying the beginnings of a local solution. The friends of the University of Buffalo had just finished assisting the university to erect its new Medical-Dental Building (1953) when they felt the full impact of the expanding requirements of medical teaching and research. The basic science departments had been housed in antiquated, cramped quarters whose confines had restricted progress in recent years. The spacious laboratories of the new school of medicine now permitted a fresh approach to the challenges of proper staffing, equipping, and administration. We were reminded of certain vital facts about current costs of medical education. The medical student's tuition fees pay less than one-third of the cost of his education. The other two-thirds, and more, must be forthcoming from other sources. It was clear that all divisions of the medical school needed and deserved additional support, but it was agreed that the most urgent need lay in the basic science departments. There are, of course, vital deficiencies in the budgets of the clinical departments, in addition to newer requirements such as those of postgraduate education, physical medicine and rehabilitation, biophysics, and legal medicine. The unanimity of the recognition by both the faculty and the profession that the first consideration was the basic science departments was both surprising and gratifying and implied that something could be done. Were the physicians to meet at least a part of the need for continuing support for medical education, our university conceded, all funds so obtained would go directly to the school of medicine.

Organization of Participating Fund.—A group of physicians set out to arouse local physicians and alumni to a realization of their obligations toward medical education—obligations extending far beyond an annual contribution. With university approval, the University of Buffalo Annual Participating Fund for Medical Education was established. Physicians, whether or not they were alumni, were asked to participate. About 150 physicians established personal contact with all members of the profession in several nearby counties. This region has been the initial arena of activity. The 2,000 alumni residing outside of this area have yet to be contacted. A pledge of one or more basic, annual, continuing units of $100 was asked of each physician. Portions of such units were accepted in special instances only. It was gratifying to see the interest and generosity of students and house officers who volunteered to join in this effort. Smaller contributions were accepted gladly from members of this group who promised later increase. To keep costs at a minimum, no professional fund-raising organization was used. Each contributor became a member of the Annual Participating Fund for Medical Education.

Advisory Functions.—In order to pursue the broad objective of this program, the University of Buffalo has decided to invite designates of this new organization to serve in an advisory capacity. The officers and committees of the organization are truly representative. The open biannual meetings will provide forums for free discussion and true participation by all the members. At such meetings, proper subjects for discussion may include any aspect of the general trend of affairs of the medical school, any points of misunderstanding or controversy, and past and future use of funds contributed. By providing to physicians an opportunity of this type for personal and official advisory participation in the affairs of the school of medicine, it is our belief, born of the attitude demonstrated by the local members of the profession during this campaign, that divisive forces within a medical community may be reconciled for the benefit of everyone. The Annual Participating Fund for Medical Education will have an official representative on the development committee of the University of Buffalo and the postgraduate committee of the school of medicine. In addition, a liaison board of the Annual Participating Fund for Medical Education is being planned to advise and consult with the dean and the executive committee of the school of medicine and with the governing body and the chancellor of the university. Such representation will afford concrete opportunity for advisory participation by the alumni and other physicians in medical school affairs. Many problems of mutual importance to the medical profession and the university are encountered. The structure of the Annual Participating Fund for Medical Education will be well suited to cope with such problems.

RESULTS

Response.—Our local efforts have been in progress for less than one year. During this time the organization and objectives of the Annual Participating Fund for Medical Education have been defined and put into action. We have been astounded by the initial response by physicians and the public approval as stated in the newspapers. One thousand forty physicians have made an annual, continuing contribution of nearly $96,000. This represents 80% of the physicians registered in Buffalo and Erie County, 50% of those in the contiguous Niagara County, plus a smaller number of alumni practicing in more distant areas. Of the contributing physicians, 20% are not alumni of the University of Buffalo. This indicates the ready acceptance of the concept of the responsibility of the physician. A systematic approach to alumni who are not local residents will be undertaken this spring. The annual contribution by physicians will then exceed $100,000.

The money pledged to date has permitted significant improvements to be made in less than one year. We have been able to help increase salaries in basic science departments, establish new positions, and increase from 70 to 80 the number of students admitted. Most important,

the university and the school of medicine have taken new hope and a fresh outlook. Obviously, the future needs are great. Support by physicians can represent only a part of the solution, but their example should aid in enlisting support from other sources. We require additional assistance for present needs, expansion, increase in the number of medical students, and the pressing requirements of clinical departments. Once the basic science departments have been placed on a healthy foundation, the expansion of the clinical departments can proceed more readily.

Public Relations.—Not the least of the success of the new organization has been in the field of public relations. Most of the members of the medical profession in this area have been brought into discussions of the problems of the medical school. Physicians have been brought together and aroused to the need for concerted planning in both medical education and medical practice. They have learned that their interest and advice is welcomed by the medical school. The newspapers of this area have expressed great editorial satisfaction with our progress as physicians in this effort to provide better medicine in this community. This newspaper publicity has been of immeasurable help not only to the physicians themselves but to the broader need for improved relations of the profession with the lay public. The implications of such a program to all university divisions have been appreciated. Already similar planning is proceeding in some of the university's other units.

SUMMARY

The problems involved in the changing character of medical practice must find solutions. Elements within medicine should reconcile their differences for the common good. Continuing and expanded support of medical educational facilities must be provided. Nowhere is there such a fertile field for progress and agreement as in friendly discussion and solution of problems in medical education, which are the concern of everyone.

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THE FACTS ABOUT MEDICAL STUDENTS

Edward L. Turner, M.D., Chicago

How many medical students are there in the United States today? How many new physicians are being graduated from approved medical schools now as compared to 25 years ago or around the turn of the century? How many premedical students apply to medical school and how many of these applicants actually gain admission? Are new schools of medicine being developed and facilities of currently existing schools being augmented in keeping with the needs of an ever-growing population constantly more conscious of the value of adequate medical care? These and many similar questions that are being asked indicate that there is a lack of factual knowledge and a great deal of misinformation widespread among the members of the medical profession as well as the American public in general as to how effectively medical facilities in the United States are meeting the constant challenges confronted by them through steadily increasing population and the eternally changing pattern of medical needs and practices.

This lack of critical knowledge of the current status, problems, and trends regarding medical school facilities, developments, students, and graduates is not confined solely to individuals outside the field of medical education, as was evidenced by the comments of a responsible administrative head of a newly developing medical school a few months ago. During a visit to the western part of the United States this educator was quoted in one of the newspapers of that area to the effect that, "It's amazing in view of the doubling of the population in the last fifty years that only a few more doctors are being graduated than in 1905." Without careful analysis and interpretation of the actual facts regarding the status of medical education 50 years ago as compared to the present time, such a statement is not only misleading but detrimental to the public interest and welfare. It evidences a lack of historical knowledge of the true status of medical education in this country at the turn of the century and the evolution through which it has gone during the past 50 odd years.

Much has been written and many comments made during recent years indicating or implying that there is a dearth of medical personnel and a need for greatly expanded facilities for the education of physicians. No one will deny that there is a need for increased numbers of physicians in keeping with population increases and overall medical care needs, but what are the facts? Have medical school facilities been augmented and, if so, how rapidly and how adequately are they increasing the supply of physicians? In other words let's get the facts straight. These facts are available in the information in "Medical Education in the United States and Canada," [1] carefully compiled by the Council on Medical Education and Hospitals of the American Medical Association and published annually in THE JOURNAL for the past 54 years. The data presented in this brief paper summarize some of the pertinent information from these annual reports. They also include certain statistics on student applications and admissions derived from material collected by John M. Stalnaker,[2] director of studies of the Association of American Medical Colleges.

STANDARDS

It is true that at the turn of the century there were 160 medical schools in the United States enrolling 26,147 students and graduating 5,606 individuals. However, it is probably not widely realized today that at that time only about one-third of the medical schools in existence

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Secretary, Council on Medical Education and Hospitals, American Medical Association.

1. Council on Medical Education and Hospitals of the American Medical Association, Medical Education in the United States and Canada, J. A. M. A. **156**: 137-179 (Sept. 11) 1954.

2. Stalnaker, J. M., and Dykman, R. A.: Admission Requirements of American Medical Colleges, 1955, Chicago, the Association of American Medical Colleges, 1954.

were in a position to offer their students a medical education that met the acceptable educational standards essential to the medical practice of that day. The remaining two-thirds of the schools in existence during that period were largely proprietary institutions run for the personal prestige and profit of their physician owners. Such schools were hardly worthy of the name, for they were poorly housed, inadequately equipped or financed, and very few of them had faculties adequately educated to teach the basic science knowledge even then available. In fact, many of the medical schools existing in this country during the first decade of the century were little more than diploma mills. Medical education in the United States at that time was chaotic indeed. In spite of a large number of schools with an over-all relatively large number of students enrolled at that time, it should be reemphasized that approximately two-thirds of them were not in a position to afford their students sound medical education or to graduate physicians competent to serve the American public effectively.

TABLE 1.—*Schools, Students, and Graduates in Medicine, 1910-1960*

	Rating of Schools			Student Enrollment			Physicians Graduated		
	Approved Schools	Unapproved Schools		Approved Schools	Unapproved Schools		Approved Schools	Unapproved Schools	
Year	A	B	C	A	B	C	A	B	C
1910	66	43	22	12,530	6,944	2,052	3,165	854	421
1915	67	22	15	11,314	2,688	909	2,629	688	219
1920	70	10	8	12,559	731	798	2,680	162	205
1925	71	3	6	17,462	554	184	3,842	118	14
1930	76	..	..	21,597	.....	.....	4,565	...	...
1935	77	..	..	22,888	.....	.....	5,101	...	...
1940	77	..	..	21,271	.....	.....	5,097	...	...
1945	77	..	..	24,028	.....	.....	5,136	...	...
1950	79	..	..	25,103	.....	.....	5,553	...	...
1954	80	..	..	28,227	.....	.....	6,801	...	...
1960	85-87	..	..	29,900 (est.)	.....	.....	7,300-7,500 (est.)	...	...

It was the low and horribly chaotic status of medical education in this country at that time that ultimately led to the careful analysis of medical education in the United States conducted under the able supervision of Dr. Abraham Flexner and financed by the Carnegie Foundation for the Advancement of Teaching. The publication of the report of this study in 1910 [3] was followed by changes that completely revolutionized medical education in the United States within a relatively short time. Only those individuals intimately acquainted with the status of medical education prior to this report can fully appreciate the significance of the readjustments it brought about. Indeed, the Flexner report deserves full credit for being the most important single factor in initiating the changes elevating medical education in this nation from a generally low and unsavory status early in the century to its position of recognized excellence today.

Table 1 has been prepared from data published in the annual Education Number of THE JOURNAL, to clearly portray the growth of approved medical schools, student enrollment, and numbers of physicians graduated at five year intervals since the Flexner report in 1910. On the basis of information currently available, projected estimates have been made to 1960. It will be noted that in 1910 there were only 66 of the 131 listed medical schools that could be considered as conducting educational programs sufficiently satisfactory to merit approval as class A institutions. These 66 approved schools enrolled a total of 12,530 students and graduated 3,165 physicians during that year. Forty-three schools, enrolling 6,944 students and graduating 854 individuals, were inadequate in so many respects that they could not merit full approval and were rated as class B institutions. The remaining 22 schools, enrolling 2,052 students and graduating 421 individuals, were conducting such poor and inadequate programs that their graduates were not considered eligible for licensure in many states. In fact, most of the schools in this latter group were diploma mills and were listed as unapproved class C institutions. Inadequately trained graduates of institutions of this type constituted a real danger to the health of the public. It should also be noted that about 30 additional schools that had been in existence in 1900 had already either amalgamated with others or discontinued their existence.

Throughout the entire period since 1910, the Council on Medical Education, during the last 25 years known as the Council on Medical Education and Hospitals, of the American Medical Association has worked closely with the Association of American Medical Colleges in constant efforts to assist in developing and maintaining the highest possible standards of medical education in the United States in the interests of the American public, which the graduates of our medical schools must serve, through the medium of establishing sound basic essentials of medical education, consultations, advice, survey evaluation, and annual listings of the approved medical schools by the Council on Medical Education and Hospitals and through membership in the Association of American Medical Colleges. These two organizations have exerted great influence in medical education in the United States. They have cooperated in stimulating and encouraging new medical schools and assisting in the improvement of those in existence where such assistance was indicated. They have discouraged only the schools that did not have facilities, finances, or faculty potentials with promise of reasonably sound educational experiences for medical students. Their objectives have been straightforward, sincere, and directed toward the development of physicians well qualified in the diagnosis, prevention, and treatment of human ailments in keeping with progressive scientific knowledge. Contrary to a common misconception, these organizations have not endeavored to control the number of physicians graduated by the schools. They have advised against medical schools undertaking to admit more students than their faculties or facilities could possibly justify, if they were to be properly educated.

Improvements in medical education took place rapidly, so that by 1929 there was no more need for listing medical schools in the A, B, C categories. A further study of table 1 reveals that since that date only approved medical schools have been listed. It clearly indicates that the number of approved medical schools in the United States increased 21.2% between 1910 and 1954 and

3. Flexner, A.: Medical Education in the United States and Canada, New York, Carnegie Foundation for the Advancement of Teaching, 1910.

that, on the basis of new schools now under development, it will have increased approximately 30% by 1960. During the same period of 44 years the number of medical students enrolled increased 125.28% and the number of graduates of approved schools increased by 114.6%. If one uses 1930 as a base line, it will be apparent that medical school enrollment has increased by 30.7% and physicians graduated by 50.3% during the 24 year period ending 1954, which is the last year for which complete statistical data are available. In other words, while the population of the nation has approximately doubled since the turn of the century, enrollment in approved medical schools has increased by 125.28%, and the number of physicians graduated from approved medical schools is 114.6% greater.

NUMBER OF APPLICANTS

Another area of misunderstanding, based largely on lack of information, has been centered around the numbers of applications versus the actual number of applicants to medical schools and the number of the latter actually admitted to the study of medicine. Competition for admission to medical school began many years ago as medical education programs were improved and basic requirements for admission elevated. Prior to World War II the total number of applicants for admission to medical schools far exceeded the number of opportunities available. Many of these applicants, however, were not well prepared for or acceptable to the schools to which they applied. However, little was heard of difficulties of gaining admission to medical school until shortly after World War II. A study of table 2 indicates the course of events between 1947 and 1954, when the situation became widely publicized. Individuals recalling the situation in all of the institutions of higher education shortly after the close of World War II will find this table almost self-explanatory. It will be recalled that following the war there was a tremendous flow of students back into educational institutions. All institutions of higher education were literally bursting at the seams. Students whose premedical and even medical education had been postponed because of the war began to accumulate in far larger numbers than there were medical school facilities available to accommodate them.

It should be recognized beyond question that it is not possible to expand medical educational facilities in the same manner in which lecture courses can be augmented in certain areas of college or university activity. A few more, or possibly even many more, students may be added to a lecture course in history, economics, sociology, philosophy, and even in mathematics and numerous other areas. Where laboratory courses are involved, enlargement of classes is attended with greater difficulty. Where definite limitations exist in both laboratory and hospital facilities, still greater obstacles are presented to sudden or extensive augmentation in size of classes. A still further problem is presented by the very nature of the American concept of the need for intimate, direct contact between medical students and their teachers, especially in the clinical fields of study. Consequently, there was no logical way in which the sudden temporary flood of applicants to medical schools could be totally accommodated in the way the temporary flood of students in excess of more normal numbers was accommodated in certain other areas of higher education. As a result there was a period between 1947 and 1950 when the ratio of applicants to the number of students admitted rose to a maximum point of one admission to every 3.6 applicants. This figure will also be somewhat of a surprise to individuals who have been under the impression that the ratio of applicants to actual admissions at one time was far higher.

During the period when the total number of applicants for admission to medical school rose to the maximum (1949) many individuals became confused and did not differentiate between applicants and the total number of applications filed by them. In 1949-1950 there were 24,434 applicants for admission to medical schools. These individuals filed a total of 88,224 applications with medical school admissions committees. In other words, each student seeking admission that year applied to an average of 3.6 medical schools. It was this confusion of total applications to medical schools with the actual number of applicants that gave rise to wild distortions of fact to the effect that only one applicant out of 10 or more could possibly get into a medical school. It is true that some medical schools had many times the applicants they could admit, while other schools had a relatively low ratio of applicants for the places available, so that the over-all national average at its maximum was one admission to every 3.6 applicants. Undoubtedly there were many disappointments and some frustrations during the period when applicants were at their peak. Nevertheless, the curve of applicants began to decrease as the postwar influx of students with GI benefits began to diminish. Last year (1953-1954) 14,678 premedical students filed 48,556 applications with medical schools; 7,449 of the 14,678 applicants, or one to every 1.97, were admitted to the first year class in medicine in some one of the approved medical schools.

TABLE 2.—*Medical School Applications, Applicants, and Admissions, 1947-1960*

Year	No. of Applications	No. of Applicants	No. Admitted	Av. No. Applications per Applicant	Ratio of Applicants to Admissions
1947-1948	56,279	18,829	6,487	3.0	1:2.9+
1948-1949	81,662	24,242	6,688	3.4	1:3.6
1949-1950	88,224	24,434	7,042	3.6	1:3.45
1950-1951	81,931	22,279	7,177	3.7	1:3.1
1951-1952	76,678	19,920	7,436	3.5	1:2.7
1952-1953	66,319	16,763	7,425	3.4	1:2.26
1953-1954	48,556	14,678	7,449	3.3	1:1.97
1960 (est.)	?	?	8,000 (est.)	?	?

For those readers who believe or who have heard that only students with "A" college records are admitted to medical schools, the following analysis of the premedical records of the 7,449 students admitted in 1953-1954 will be of interest. In this group, 21.1% had college grade averages of "A," 68.9% had "B" averages, and 10% had "C" premedical averages. In other words, one out of every two applicants to medical school was admitted last year, and the premedical averages of those gaining admission ranged from "C" to "A."

What lies ahead? Are facilities for educating medical students increasing, and cannot existing schools expand their facilities? Table 1 indicates that the number of ap-

proved schools has increased proportionately less rapidly than the number of students enrolled and physicians graduated. Thus, the approved medical schools have increased their production of physicians through increased student enrollment as their finances, facilities, and faculty personnel have made such expansion possible. Medical education is costly, and the development of medical school facilities to meet current educational needs in this field represents a large financial investment. Wherever it will be possible to augment finances and facilities, still further expansion in enrollment may occur in some of the existing medical schools. It is hoped, however, that none of them will endeavor to enroll more students than they can effectively educate into well qualified young physicians. Currently, there are five completely new schools in various stages of development, from final planning to actual enrollment of four classes of students. The University of California at Los Angeles will be the first one of these to graduate a class of physicians, and this will occur in June, 1955. The others are the University of Miami, Albert Einstein College of Medicine, Seton Hall College of Medicine, and the University of Florida. In addition, three former two years schools of basic medical science, namely, the medical schools of the University of Mississippi, Missouri, and West Virginia, are being developed into complete four year medical schools. All eight of these institutions will be graduating physicians by 1960, and there should be, therefore, between 7,300 and 7,500 physicians produced annually from approved medical schools in this country by that time. It is possible that the new medical school may develop at the University of Kentucky and that North Dakota may develop its two year school into a four year program during this period. In addition, a development of additional new schools of medicine is being considered in other parts of the nation.

SUMMARY

Changes have taken place in the numbers of approved medical schools, numbers of students admitted to medical school, and the numbers of physicians graduated during the period from 1900 to 1954. While the population of the nation has approximately doubled during this period, in the 44 years since 1910 student enrollment in approved schools of medicine increased from 12,530 to 28,229, which represented a total increase of 125.8%. In 1910 there were 3,165 physicians graduated from approved medical schools as compared to 6,861 in 1954, the latter figure representing an increase of 114.6%. Standards of medical education have become increasingly high since the early 20th century through the efforts of the Council on Medical Education and Hospitals and the Association of American Medical Colleges. Statistical data clarify misconceptions concerning the numbers of applications, actual number of applicants, and the number of the applicants actually gaining admission to the medical schools in the United States during the period 1947-1954. The over-all national average at its maximum was one admission to every 3.6 applicants. New medical education facilities are currently in the process of development. Estimated projections made of admissions and graduates of all approved medical schools by 1960 show that from 7,300 to 7,500 physicians should be produced annually.

CLINICAL NOTES

DRAMATIC RESPONSE TO CORTISONE THERAPY IN A CASE OF SERUM NEURITIS

Hugh Smith, M.D.
and
Hugh Smith Jr., M.D., Greenville, S. C.

One of the unhappy complications of administration of blood serum for any purpose is neuritis, which is often excruciatingly painful and frequently leads to permanent damage. Heretofore, therapy has not been particularly successful; we wish to report a case in which the response to cortisone was dramatic.

REPORT OF A CASE

A 37-year-old white man was first seen by us on Sept. 12, 1951. Twenty-two days earlier, he had accidentally impaled his right thigh on a bush he was cutting. It had become infected, and he had gone to see his doctor after six days, at which time the wound was opened widely and the patient was hospitalized. During the eight days while the patient was in the hospital, he received three injections of tetanus antitoxin. The day after discharge he began to complain of pain in his right shoulder; this later spread to the left shoulder, left arm, and left thigh and leg and then to the right thigh and the abdominal wall. Two or three days after the patient's discharge, his right arm became weak. He was treated with large doses of vitamins and antihistamines, without relief. The pain was so severe as to make him cry out. He said the arm felt as if it were being torn from its socket.

Examination revealed a well-developed young man in considerable pain, moaning constantly. There was a red, confluent, maculopapular rash over the scalp and face. The temperature was 99.2 F, the pulse rate was 80 per minute, and the blood pressure was 120 mm. Hg systolic and 70 mm. Hg diastolic. The patient's skin appeared dirty, his tongue was coated brown, his teeth were carious, and his gums were infected. The heart, lungs, and abdomen were normal. There was a long, well-healed scar inside the right thigh. Neurological examination revealed normal tendon reflexes; Babinski signs and response to Hofmann's test were normal. There was no cranial nerve weakness. There was considerable weakness of the shoulder muscles of the right arm and biceps, so that the patient could not lift the arm unaided but used the left arm to move it. He could not flex the right elbow and could barely extend it. There was slight weakness of the left arm. There was no wrist drop or foot drop. The grip of the right hand was weak, but the grip of the left hand was good. There was no incoordination. The leg muscles were strong. There was hypesthesia to pinprick over the right shoulder posteriorly and down the ulnar side of the forearm; there was slight hypesthesia similarly distributed over the left side as well as over the anterior surface of the left thigh, inside the left calf, and over the anterior portion of the right thigh. Laboratory data were normal.

It was felt that the patient had a polyneuritis due to tetanus antitoxin serum neuritis, involving the right shoulder and arm (cervical nerves five and six) most extensively. He was given calcium intravenously, without benefit; he continued to cry with pain. On the afternoon of Sept. 13, therapy with cortisone, administered orally, was begun; dosage was 300 mg. in the first 24 hours and 200 mg. daily thereafter. Response was dramatic; within 24 hours the patient was considerably brighter, and he sat up and shaved himself for the first time. He was able to move his right arm rather well, although there was still considerable weakness. His skin rash cleared rapidly, and he felt quite well. He continued to have some pain, but it was much

less bothersome. The atrophy of his deltoid, supraspinatus, and infraspinatus muscles persisted. He could not yet raise the right arm above shoulder level.

On Sept. 19 pain associated with microscopic hematuria suddenly developed; it was relieved after cystoscopy with removal of several small right ureteral stones. Right axillary hidradenitis suppurativa also developed; it responded to oxytetracycline (Terramycin) administered orally. The patient was discharged Sept. 23, in good condition. He disclaimed any neuritic pain at all except for a slight amount in the early morning hours of each day. He continued to note improvement in the strength of his right arm and was able to raise it to 45 degrees from vertical prior to discharge. The patient left town after this, but we heard in June, 1954, that he was working as a laborer and had no obvious physical handicaps, although he still complained of pain and weakness in the right arm and shoulder.

SUMMARY

Serum neuritis is a complication of therapeutic and prophylactic administration of serums and vaccines that has been difficult to treat in the past. Since such neuritis is believed to be a result of an allergic reaction, with edema and ischemia of nerves, corticotropin and cortisone seem to be ideal therapeutic agents. In the case here presented, there was a prompt and dramatic improvement after administration of cortisone.

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A NEW ROENTGEN SIGN OF MALIGNANCY IN THE SOLITARY PULMONARY NODULE

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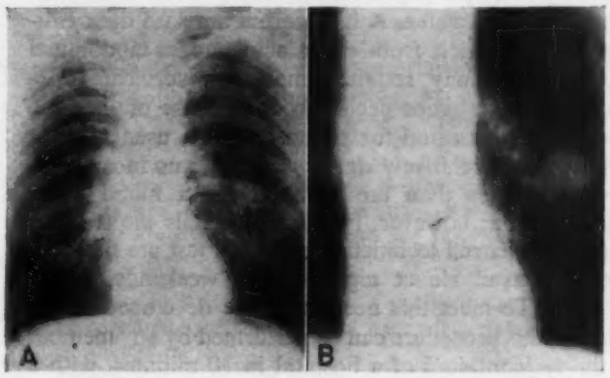
The increasing frequency with which isolated rounded shadows, often called coin lesions, are observed in roentgenograms of the lungs presents an extremely difficult problem in differential diagnosis. The literature is replete with descriptions of these spheroidal nodules, their gross and microscopic anatomy, roentgen findings, and clinical significance. Some 30 conditions have been cited as producing such shadows. Most of the contributions indicate that surgical excision with microscopic examination of the tissue is the only safe method for handling such lesions, particularly in patients in the older age groups. But the finding of such a shadow during the course of a survey examination in an apparently healthy person is becoming so common that it is frequently difficult to insist on surgical exploration in every case. Efforts to make a differential roentgenologic diagnosis have not been highly successful. The demonstration of a round, sharply defined contour or the presence of calcium, both demonstrated best by body section roentgenography, seems to indicate the benign character of the lesion, although such findings are far from conclusive.

In recent years I have observed a new roentgen sign, not previously reported, which has so far invariably proved to be indicative of malignancy in the lesion exhibited radiographically by such a solitary shadow. This sign is best seen in body section roentgenograms of the shadow. In these cases the size of the nodule has varied in diameter from about 1 up to 10 cm.; the sign has been seen best in the smaller or moderate-sized lesions. I have observed this sign also on conventional roentgenograms of the chest, but uncommonly; in every case it is far better shown on the planigraphic film, most likely because of the obliteration of the overlying vascular shadows that tend to obscure the borders of the density. The sign consists of a notching or umbilication of a border of the shadow; the depth of the depression is variable. There is usually a single notch sharply defined and most frequently wedge-shaped. It may take a triangular shape or be undetermined giving it an umbilicated appearance. This peculiar deformity has been observed in primary peripheral lung carcinoma of all cell types and in a variety of metastases. I have not yet observed the finding in a benign lesion. The characteristic appearance is illustrated in the figure, which shows primary squamous cell carcinoma of the lung. The difficulty in demonstrating the lesion in conventional roentgenograms (figure, *A*) and its clear appearance in the body section roentgenogram (figure, *B*) are well illustrated. It should be noted that the absence of this sign certainly does not exclude cancer, but its presence is so significant that exploratory thoracotomy would be indicated in every case, regardless of the negativity of all other findings. I am assuming in this statement that a solitary metastasis is an indication for extirpation. The pathological anatomy that produces this is now being studied. The variations in its appearance and the character of equivocal shadows of this kind are also being reviewed. Attempts are being made at the moment to determine its actual frequency in spheroidal nodules in the lung, which later proved to be malignant, and also to determine the certainty of its absence in those spheroidal nodules that are definitely benign. All of these findings will be reported at a later date.

From the Department of Radiology, University of Minnesota.



Squamous cell carcinoma of left lung. *A*, conventional roentgenogram, posteroanterior view of only the left side. Solitary peripheral spheroidal shadow (arrow) in the lung. Note that notching is not visible. *B*, planigraphic study at a level through the center of the nodule. The characteristic, somewhat triangular-shaped notch in the inferior border of the density is seen (arrow). This deformity indicates the malignant character of the lung nodule.

Prescriptions Filled in Foreign Countries.—In these days of easy and frequent foreign travel, it must often happen that a patient carries with him to Europe or South America, a prescription written by a physician here. Because of the difference in metric and apothecary's dosage terms and because of the difference in terminology, this may prove hazardous. . . . Moral: If your peripatetic patient needs a prescription while traveling in a non-English speaking country, have the Rx filled here, and send the patient the medication, not the prescription.—L. Zweibel, M.D., Foreign Filled Rx May Be Hazardous, *The Journal of the Medical Society of New Jersey*, November, 1954.

A RAPID SERUM AMYLASE TEST

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and
Henry Doubilet, M.D., New York

Since it is generally accepted that surgical intervention is a hazardous procedure during an attack of acute pancreatitis, a simple rapid serum amylase test should be of great clinical value. A high serum amylase differentiates this condition from other acute upper abdominal diseases that may require emergency surgical treatment and determines decisively the course of therapy. The Somogyi method for serum amylase, used in most institutions, is relatively simple and needs no more laboratory facilities than are required for a blood sugar determination; however, in many hospitals the services of an experienced technician to do this test are not conveniently available at night, during weekends, or on holidays. To meet this need, we have developed a new method; this procedure can be performed by any member of the resident staff of a hospital in 10 minutes, with a minimum of clinical apparatus (test tubes; a pipet, to deliver 0.1 ml., calibrations of 0.01 ml.; three dropping bottles, 50 ml. capacity; and a water bath). A minute amount of starch is incubated with serum for five minutes. A normal concentration of amylase will leave some of the starch undigested and give a blue color with iodine. A high serum amylase will digest all the starch, and the addition of iodine will give only the yellow color of iodine.

REAGENTS

Iodine Reagent.—A stock solution of 0.1 *N* iodine in potassium iodide is prepared (1.27 gm. iodine and 3.32 gm. potassium iodide in 100 ml. water). To 25 ml. of stock solution, 17 ml. of concentrated hydrochloric acid and water to make 100 ml. are added. This gives a solution of 0.025 *N* iodine in 2 *N* hydrochloric acid. This reagent is kept in a brown dropping bottle and is stable for several months if refrigerated. The concentration of free iodine increases on standing, and when the reagent darkens it should be discarded.

Buffered Saline.—Phosphate buffer, pH 6.8 (potassium dihydrogen phosphate, 4.54 gm., and disodium acid phosphate, 4.735 gm., in 200 ml. water), 20 ml. is diluted to 100 ml. with isotonic sodium chloride solution. This reagent is also kept in a dropping bottle.

Starch Solution.—Soluble starch, 100 mg. (Merck), or special starch, 120 mg. (Takamine), is weighed accurately and transferred to a small beaker. A few drops of distilled water are added, and a paste is made. To this is added about 40 ml. of boiling water, and the starch is dissolved completely. This is quantitatively transferred to a 100 ml. volumetric flask, and the beaker is rinsed with another portion of boiling water, which is also added to the flask. A few milligrams of water-soluble white thimerosal (Merthiolate) is added as a preservative. When the solution is cool, it is diluted to 100 ml. and mixed thoroughly; it must be kept in the refrigerator and discarded after two weeks.

It is desirable to add the starch to the serum rapidly. This is accomplished by using a dropper (dropping bottle) that is calibrated to deliver 0.25 ml. in a known number of drops. The calibration is made by delivering with the dropper 60 drops of the starch solution into a 10 ml. dry graduated cylinder to be calibrated. The volume is read, and the number of drops required to give 0.25 ml. is found by dividing 60 by 4 times the volume (in milliliters). Generally five or six drops are required. The soluble starches available vary in their average chain length and water content. Merck's soluble starch gives satisfactory results if 1 mg. per milliliter is used. Takamine special starch give the most sensitive results (1.2 mg. per milliliter). Variations in the test are usually due to errors in weighing the starch, which may pick up excessive water on exposure to the air. The label of the starch solution should bear the date when the solution was made up, since after two weeks it becomes unreliable.

PROCEDURE

The serum (0.1 ml.) is pipetted into the bottom of a small test tube; to this is added four drops of buffered saline; the tube is placed in an incubator or water bath at 40 C (104 F) and allowed to come to bath temperature. The starch solution (0.25 ml., five or six drops) is added rapidly, and the tube is swirled gently and returned to the bath. In exactly five minutes from the time of addition of the starch, one drop of iodine reagent is added; the color is read after a few seconds. Blue to green indicates a normal amount of serum amylase and is comparable to up to 200 Somogyi units per 100 cc., Lagerlof's method. Light green to amber is a questionable reaction and corresponds to 200 to 350 units per 100 cc. If the test, made with 0.1 ml. of serum, results in a yellow color the patient has an elevated serum amylase, comparable to 350 units or higher. To estimate the abnormal concentration of serum amylase more closely, the test may be repeated with 0.05 ml. of serum with five drops of buffered saline. With 0.05 ml. of serum, blue to green corresponds to 350 to 500 Somogyi units, Lagerlof's method. Orange to amber corresponds to 500 to 750 units. Straw color corresponds to 750 units or higher. When this method is first set up, the results should be checked by the Somogyi [1] or Lagerlof [2] method to detect divergences.

RESULTS

Eight hundred serum amylase tests were carried out during the past two years. Each test was checked against the routine method used in this laboratory (Lagerlof's method, results expressed in Somogyi units [3]); the correlation was found to be satisfactory. The test was found of value by our resident staff, to whom the reagents kept in our refrigerator were constantly available. The test was repeatedly useful in making quick diagnoses in cases simulating acute cholecystitis, perforated ulcer, or acute intestinal obstruction. When the color of the reaction for a patient with an acute abdominal condition was in the

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1. Somogyi, M.: Micromethods for the Estimation of Diastase, J. Biol. Chem. **125**: 399-414, 1938.
2. Lagerlof, H. O.: Pancreatic Function and Pancreatic Disease Studied by Means of Secretin, Acta Med. Scandinav. (supp.) **128**: 1-289, 1942.
3. Doubilet, H.: Value of the Secretin Test in Surgery, S. Clin. North America **29**: 489-499, 1949.

equivocal zone, that is, between blue-green and yellow, other factors in the clinical picture were considered to be more important; however, when the reaction color was yellow, and especially when the same reaction was produced with 0.05 ml. of serum, the diagnosis of acute pancreatitis was considered to be definite.

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CONTACT DERMATITIS FROM CHLORPROMAZINE

REPORT OF TWO CASES

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Undesirable and even hazardous reactions to new drugs may not be apparent during the first year or two in which they are clinically used. Such reactions may be explained as coincidental, and, since the experience of any one physician is necessarily limited, the true explanation may require a considerable period. In addition there are no known safeguards by which a sponsoring pharmaceutical firm may with certainty elicit reactions to drugs before releasing them for clinical trial. The following two cases are illustrative of a severe incapacitating skin reaction to chlorpromazine (Thorazine), a new chemical compound [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] that has been advocated for use in the management of pain and of nausea and vomiting and in the treatment of neuropsychiatric disorders.[1] Attempts by the pharmaceutical firm that sponsors the drug to ascertain toxic and allergic phenomena had not revealed any evidence that might have warned of the possibility of this serious side-reaction.

REPORT OF CASES

CASE 1.—A visiting nurse, aged 47, was first observed on Dec. 28, 1953, for the relief of a contact dermatitis of two weeks' duration. The eyelids were edematous, and an erythematous, scaly, patchy eruption affected the face and the backs of the hands. There was moderate and persistent pruritus. The history suggested many possible contactants, including hand cream, rubber gloves, cresol, soap, shampoo, and detergent. The patient was instructed to avoid contact with these substances; soothing remedies were used locally and antihistamines were given internally. There was a gradual subsidence of the eruption. Subsequently, on four separate occasions, an exacerbation of the dermatitis occurred. Each succeeding attack was more severe as to extent, intensity of inflammation, duration, and degree of pruritus. Clothing, moth balls, disposable tissues, and perfume came under suspicion as possible causes but were ruled out by exacerbations of the rash after they had been eliminated from the environment. The only drug used by the patient in her professional duties that was suspected as a possible cause was thymol iodide. It was not until March 12, 1954, when she had a severe attack, that chlorpromazine was suspected. It was then discovered that this nurse had periodically visited a patient to administer chlorpromazine for the relief of intractable vomiting. On March 19, there was some improvement, and, since the exact diagnosis was considered important, a patch test with this drug, in concentration of 25 mg. per cubic centimeter of diluent, was applied to the arm. As instructed, the patient removed the patch in two hours, at which time there was no sign of reaction. She then reapplied the patch to the same site and left it on until the following morning, for a total period of 10 hours. Within four hours after removal of the test material, a pronounced edematous and vesicular eruption developed at the test site and in the adjacent skin on the left arm. A severe reaction was also present on the anterior forearm, which had been in contact with the patch test from flexion of the arm during sleep. Coincidentally the eruption on the face and hands flared badly. The eyes were swollen shut; the rash became exudative and spread from the face to include the ears and neck. The right arm became affected. Autoeczematization as evidenced by discrete and later confluent erythematous vesicular lesions appeared on the trunk and lower extremities. The local use of soothing remedies and of hydrocortisone emulsion, the administration of antihistamines and sedatives, and x-ray therapy finally brought gradual relief, and after five weeks the acute inflammation subsided. On May 5, there was still some residual redness and thickening of the skin of the left forearm and the backs of the hands; occasional bouts of pruritus still occurred. The patient returned to work on May 10 and was able to continue her duties, although some pruritus and occasional eczematous lesions were noted on the hands and forearms for more than a month.

CASE 2.—A 32-year-old visiting nurse was first seen on March 6, 1954, with a severely pruritic, excoriated, edematous, scaling, maculopapular eruption involving the upper eyelids, the malar regions, the fingers, the dorsa of the hands, and the flexor aspects of the forearms. The eruption had been present, in varying degree, for a period of three months. A diagnosis of chronic contact dermatitis was readily made, but the contactant was not ascertained until the experience in case 1 drew attention to the possibility of sensitivity to chlorpromazine. The patient had been administering the drug intramuscularly one to three times daily since Oct. 24, 1953. She had been in contact with it for 5 weeks before any dermatitis appeared and for 13 weeks before she was forced to stop work because of the severity of the eruption. A patch test with two drops of chlorpromazine solution (25 mg. per cubic centimeter) was performed; the patch was kept in place for two hours. A severely bullous reaction occurred, together with an acute exacerbation of the dermatitis on hands and eyelids. Response to therapy was similar to that in case 1, but even more protracted; the patient was not able to resume her nursing duties for two months.

COMMENT

From preliminary reports, chlorpromazine would appear to be useful for its antiemetic properties and for the relief of pain, particularly in patients who no longer respond satisfactorily to large doses of narcotics and sedatives. It has also been noted that chlorpromazine has a pronounced and favorable effect in the treatment of patients with senile, paranoiac, and manic psychoses, anxiety neuroses, and other neuropsychiatric disorders. Numerous side-effects have been noted,[1] none of which were considered serious. The most common is drowsiness; others are dryness and bitter taste in the mouth, increased and vivid dreaming, constipation, urticaria, jaundice, fall in blood pressure, palpation, pyrosis, dyspnea, oliguria, and ataxia.

In a communication from the pharmaceutical firm,[2] it was stated that there were "vague reports from the French concerning possible contact dermatitis." In several nurses who had had repeated exposure to the drug some skin irritation had developed. For this reason an investigation was begun, which was reported as follows:

Fifty white male adults were studied. A 25% solution of "Thorazine" was applied to the skin and covered with occlusive dressing. This was repeated after 3 days and again 3 days later.

1. Brochure on Thorazine® (Chlorpromazine, SKF 2601-A), Smith, Kline, and French Laboratories, March, 1954. Winkelman, N. W., Jr.: Chlorpromazine in the Treatment of Neuropsychiatric Disorders, J. A. M. A. **155**: 18 (May 1) 1954. Sadove, M. S., and others: Chlorpromazine and Narcotics in the Management of Pain of Malignant Lesions, ibid. **155**: 626 (June 12) 1954.

2. Cornman, H. D., III: Personal communication to the authors.

Exposure was terminated at the end of 10 days. No unusual skin changes were noted at this time. One month after the end of exposure, a new application of freshly prepared "Thorazine" solution was made in the usual fashion and maintained by an occlusive dressing for 48 hours. Not a single case of sensitization reaction was seen in the 50 men. There were no cases of primary irritancy. It was concluded that the drug did not appear to be a strong sensitizer, in spite of the fact that it had been tested in a concentration much higher than is to be used clinically. We have had no other cases of sensitivity reported although the drug has been used in 10,000 to 15,000 patients.

In spite of these attempts by the pharmaceutical firm to predict an incidence of contact sensitivity, the work failed to reveal the danger to those who handle the drug frequently or over a prolonged period. Since this problem concerns chiefly nurses or physicians, it is of added importance to the profession that the possibility of severe epidermal sensitization to chlorpromazine be appreciated. Failure to recognize promptly the causal agent and to institute suitable measures to prevent contact with the drug will subject the patient to the hazard of an incapacitating dermatitis.

SUMMARY

Two nurses, both exposed to chlorpromazine [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] frequently and over several months in their professional work, eventually became sensitized to the drug. In both cases the resultant dermatitis was sufficiently severe to be disabling; the course was unusually protracted. The chief danger seems to be in frequent or long-continued contact with the chemical, which may ultimately sensitize the skin.

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VERSATILE DRAINAGE APPARATUS

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Some time ago, because of occasional inadvertent interruption of pleural suction after pulmonary resection, it was decided to construct an apparatus with an alarm system that would instantly indicate a drop in pressure. Since the first model was produced about 18 months ago it has gradually been modified and improved. Moreover, new uses have been discovered. It is now employed not only in chest surgery but also for gastrointestinal suction. Thus, it has been possible to combine in a single unit all the common forms of suction apparatus employed in general and thoracic surgery.

DESCRIPTION

Figure 1 is a frontal view of the apparatus, which is small enough to fit under a standard hospital bed. A suction pump, situated on the left, may be omitted where wall suction is available. The mercury manometer, removable wire held by thumb screw, fixed insulated wire, doorbell buzzer, and drainage bottle are visible. Figure 2 is a diagrammatic sketch of the same apparatus. The portion within the interrupted line represents the contents of the cabinet; this is, trap bottle, *B*, containing flutter valve, *C*; flutter valve, *C'*; and negative pressure regulator bottle, *D*, containing mercury, *K*. A three volt battery, *H*, is also included in the cabinet. *A* represents the mercury manometer; *E* represents the drainage bottle. The electrical wiring is described in the lower portion of the diagram. *G* is a removable rigid copper wire passed through a hole in the screw and held by wing nut, *F*.

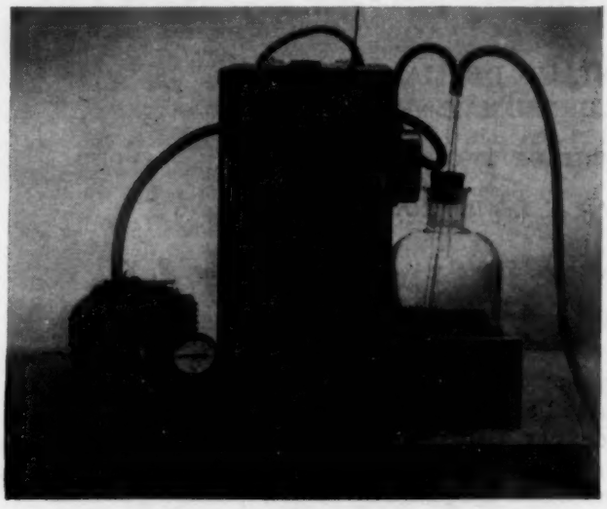

Fig. 1.—Drainage apparatus.

Lateral view of this assembly is shown at left. *J* is a fixed insulated wire. *I* represents a door buzzer. Flutter valves are made of Penrose drain held in place by elastic bands. The drains are maintained flat by small silver brain clips along the edges.

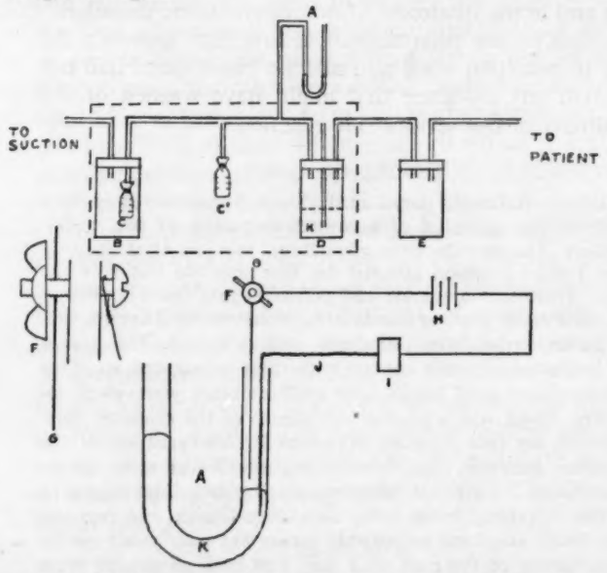

Fig. 2.—Diagrammatic sketch of drainage apparatus. *A*, mercury manometer; *B*, trap bottle; *C* and *C'*, flutter valves; *D*, negative pressure bottle; *E*, drainage bottle; *F*, wing nut; *G*, wire; *H*, battery; *I*, door buzzer; *J*, wire; and *K*, mercury.

METHOD

For pleural drainage except after pneumonectomy the following procedure is followed. A negative pressure of 20 to 30 cm. of water is employed. The degree of negative pressure is determined by the depth of the orifice of the tube beneath the surface of the mercury in bottle *D*. This is translated into centimeters of water by the man-

From the surgical services of Ray Brook State Tuberculosis Hospital and the Veterans Administration Hospital, Providence, R. I.

ometer when suction is applied to the apparatus with the tube to the patient clamped. The apparatus is connected to wall suction in the operating room while the chest is being closed. While the patient is being transferred to the recovery room, the suction is no longer available; the apparatus functions as would an underwater seal. Again, in the recovery room suction is reinstituted. As soon as the manometer has ceased to fluctuate and the patient has eliminated all trace of explosive anesthetic gases, the wire *G* is inserted with its lower extremity slightly below the zero mark on the manometer. After this, failure to maintain negative pressure allows the mercury to establish contact with wire *G*, causing the buzzer to sound. It should be reemphasized that wire *G* should not be inserted while there is an explosion hazard.

For pleural drainage where indicated after pneumonectomy, this apparatus may be employed in place of one previously described.[1] Under these circumstances no suction is employed and the tube in bottle *D* is set for minus 12 cm. of water. The buzzer system is not used in either this instance or the ones to be described below. For intrapulmonary cavitary drainage the apparatus is ideal, incorporating the essential features utilized by Woodruff.[2] A negative pressure of 20 cm. of water is usually employed. Without modification the apparatus may be attached to a gastric or intestinal tube. For this purpose minus 50 cm. of water is usually required.

The apparatus described can be constructed at little expense with materials available in most hospitals. It is compact, portable, and versatile. Because of the presence of an automatic alarm system, it requires little attention. The buzzer has not proved annoying to either patients or ward personnel.

Ray Brook State Tuberculosis Hospital.

1. Pecora, D. V., and Cooper, P.: Pleural Drainage Following Pneumonectomy: Description of Apparatus, Surgery 37: 251 (Feb.) 1955.
2. Woodruff, W.: A Suction Cabinet for Use in Cavity Aspiration (Monaldi), Am. Rev. Tuberc. 52: 502 (Dec.) 1945.

OCCULT TESTICULAR TUMOR

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Herbert Schultz, M.D.
and
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It is the routine procedure today to include an inspection and palpation of the external genitalia during the course of a physical examination. Such a practice will usually reveal the presence of any testicular irregularity or nodularity that is indicative of the probable presence of a tumor of the testis. In this case the testicular tumor was first manifest by the presence of a large solitary metastatic mass in the left retroperitoneum, and the primary tumor could not be detected on physical examination.

REPORT OF A CASE

A 55-year-old white male office worker consulted one of us (H. S.) because of a painless swelling of his left lower extremity of three weeks' duration. Examination revealed a large, hard mass occupying the left lower quadrant. Roentgenographic gastrointestinal studies and barium enema showed no abnormality of the gastrointestinal tract but did show a space-occupying mass in the left lower quadrant. An excretory urogram showed a marked medial displacement of the left ureter. The patient was then immediately sent to the hospital. The patient's history included "relasping fever" 30 years previously but was otherwise normal. Physical examination disclosed the presence of a fixed large oblong, 6 by 4 in. (15.24 by 10.16 cm.) intra-abdominal mass in the left lower quadrant. It was hard, nodular, and nontender. The entire left lower extremity was swollen so that it was twice the size of the opposite extremity. There was no other

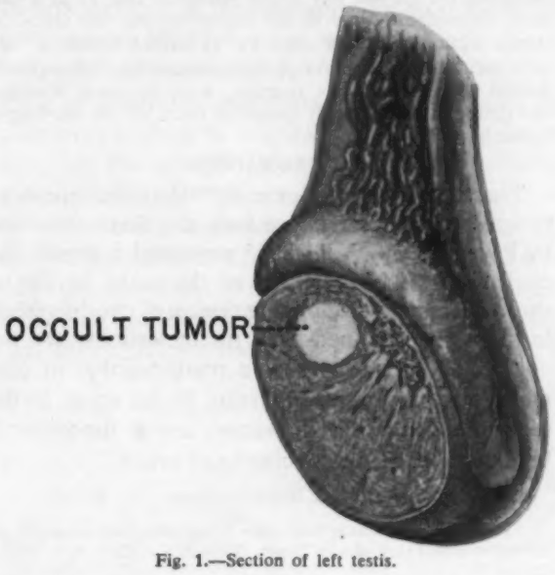

Fig. 1.—Section of left testis.

evident pathological condition. Careful examination of the external genitalia revealed no palpable nodularity of the testes. Results of urinalysis were normal. The hemoglobin level was 14.6 gm. per 100 cc. Results of serologic tests were normal.

The day following the patient's admission, a retrograde pyeloureterogram revealed a marked anteromedial displacement of the left ureter, with a partial obstruction of the lower third as though compressed by an extrinsic lesion, thus verifying the

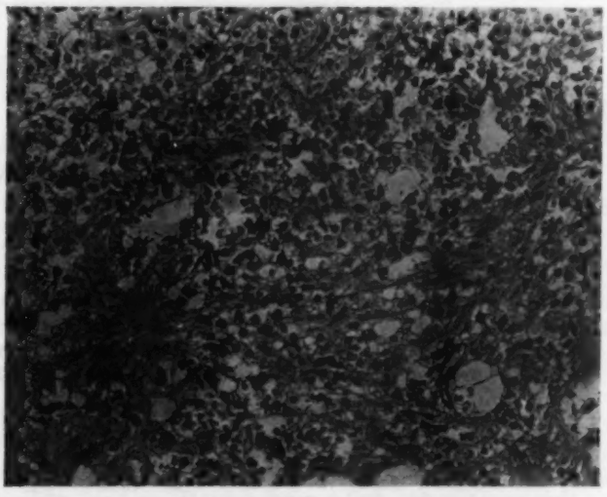

Fig. 2.—Biopsy from retroperitoneal tumor (high-power view).

presence of an extraperitoneal mass. A left retroperitoneal exploratory laparotomy was performed. It was found that the patient had a large, 6 by 4 in., oblong inoperable tumor mass that was fixed to the left iliac blood vessels and the ureter. The tumor encircled the aorta in one area. At the time of operation we believed we were dealing with a rhabdomyoma of the psoas muscle. The ureter was freed from the mass and a ureterostomy was performed, threading a polyvinyl catheter past the obstructed area and into the bladder. A biopsy was taken. The

report was seminoma and chorioepithelioma (fig. 2). The testes were again carefully examined. One examiner vaguely felt that there was a nodule deep in the left testis in the region of the rete testis. A 24-hour quantitative gonadotrophin urinary excretion test was then performed and reported. Results of the Friedman test were negative; chorionic gonadotrophin values were 830 mouse units per 24 hours and 500 mouse units per liter. A bilateral orchidectomy was done and in the left testis a small, ¼-½ in. (0.64-1.27 cm.) diameter, hard nodule was barely palpable. On section this lesion appeared (fig. 1) as a discrete, hard, yellowish nodule in the region of the rete testis. Microscopic sections were reported as "cicatrized teratoma" of testis with metastatic seminoma of retroperitoneum. Subsequently the patient was given x-ray therapy, with dramatic shrinkage of the tumor mass and with complete relief of the swelling of his lower extremity.

COMMENT

These "burned out primary" testicular tumors with progressive metastases are rare, the first being reported by Prym [1] in 1927. Rather [2] presented a review that included only 24 cases. All of the cases in the review showed a histological picture typical of chorioepithelioma in the tissue obtained from the metastases. We wish to add an additional case as a reminder that in cases of metastatic carcinoma occurring in the male, in the absence of a demonstrable primary lesion, the testes should be thought of as a possible site of origin.

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1. Prym, P.: Spontanheilung eines bösartigen, wahrscheinlich chorionepitheliomatösen Gewächs im Hoden, Virchow's Arch. f. Path. Anat. **265**: 239, 1927.

2. Rather, L. J.; Gardiner, W. R., and Frerichs, J. B.: Regression and Maturation of Primary Testicular Tumors with Progressive Growth of Metastases: A Report of Six New Cases and a Review of the Literature, Stanford M. Bull. **12**: 12 (Feb.) 1954.

SPECIAL ARTICLES

THE PHYSICIAN AS A LIFELONG STUDENT

Douglas D. Vollan, M.D., Chicago

The following article is the second in a series of eight, which together constitute the report of a two and one-half year Survey of Postgraduate Medical Education by the Council on Medical Education and Hospitals of the American Medical Association. The survey included a questionnaire study of a large random sample of practicing physicians as well as detailed analyses of the postgraduate courses offered by the numerous sponsoring institutions and organizations. The first article, entitled "Scope and Extent of Postgraduate Medical Education in the United States," appeared in THE JOURNAL *Feb. 26, 1955, page 703.*

Physicians are a unique group educationally, but within the group itself there are numerous subgroups that combine to make postgraduate medical education a most complicated educational endeavor. In this article these unique characteristics will be delineated, and ways of meeting the problems they raise will be suggested.

Assistant Secretary, Council on Medical Education and Hospitals, American Medical Association, aided by the Council's Committee on Postgraduate Medical Education, composed of Drs. Donald G. Anderson, James M. Faulkner, Edward L. Turner, and Edward H. Leveroos.

A complete description of the sample, returns, and methods of the survey will be made available as an appendix in the reprint edition of the series to be published later this year.

UNIQUENESS OF THE PHYSICIAN-STUDENT

The practicing physician differs from the undergraduate medical student, the intern, the resident, and the graduate student in many ways, most basic of which is motivation. Whereas in all other phases of medical education there is some tangible reward to be gained from the time and energy expended, in postgraduate medical education the end-result is not an advanced degree or other evidence of advanced standing in the profession but rather inner satisfactions on which no objective value can be placed. Some physicians are motivated by a sincere desire to increase their knowledge of medicine in order to do a better job for their patients and some by a fear of the results—medical and legal—of not practicing modern medicine. Others are simply curious, seeking always to expand and deepen their knowledge of the field in which they work. All of these represent the type of high-minded motivation that it is the responsibility of the medical school to instill in its students so that the habit of continuing education will be established before graduation. A desire for increased prestige among his colleagues and his patients—to say nothing of increased self-esteem—motivates some physicians to go away to medical centers for postgraduate work. Not only is it embarrassing for the physician to be unable to answer his patients' or his colleagues' questions about new medical advances, but the desire to excel in one narrow aspect of a field is an element of basic human nature. Postgraduate courses are used by some as the occasion for a brief respite from the rigors of practice or frankly as a vacation. Social activities and school reunions at the time of the annual big football game act as coincident motives in some cases. There are also physicians who use courses in such subjects as electrocardiography to justify use of newly purchased diagnostic or therapeutic equipment that may represent financial as well as medical gains to them. It is evident that the very nature of postgraduate medical education precludes a student group of the "captive audience" variety that is willing to sit through any number of required sessions in order to receive a degree at the end.

Furthermore, postgraduate medical education is a specific form of adult education, with the problems characteristic of this type of education. The practicing physician enters a postgraduate course with much experience and knowledge of the subject already in his possession. Points of detail that to the medical student may have been remote and disjointed facts often "ring a bell" in the mind of a physician who has need of that particular information. The physician's frame of reference is entirely different from that of the medical student. He tempers pure fact with judgment, and he constantly thinks in terms of practical applications rather than in terms of the probability of an item turning up on an examination. He is better able to comprehend basic principles, since he can relate them to experience, than is the undergraduate medical student. As his practice has demonstrated to him his own weak points, he is on the lookout for material that will meet his own peculiar needs. This tends to point his interest to specific subjects, an interest that is often misinterpreted as an undue desire to specialize with inadequate training.

The third unique feature of the physician-student is that he must be considered as physician first and student second. Regardless of how far he may be from his office, he always has the responsibility of his patients in mind. Since he is undertaking postgraduate study concurrent with the pursuit of his medical practice, he feels acutely the need to make every moment count. By contrast, the medical student thinks in terms of four years of schooling in which a day lost here or there is not of great concern. The physician, on the other hand, realizes that every moment spent in a postgraduate course is time and income lost from his practice. The physician has even less time on his hands than people in other fields, since he has a total work week of 60 rather than the accepted norm of 40 hours a week.[1] When to this is added the time physicians devote to reading and hospital staff meetings each week and perhaps attendance at a county, state, or national medical society meeting, it may be seen that his time is at a premium.[2] This undercurrent of urgency raises some unique pedagogical problems.

VARIATIONS AMONG PHYSICIAN-STUDENTS

Although physicians constitute a unique group of students, they differ from each other in background, training, location, and age, as well as type and field of practice, all of which affect the use of postgraduate opportunities and the planning of such by program directors.

Fields of Practice.—The term practicing physician in this article excludes interns, residents, fellows, and physicians in government service, retired or not in practice. The fields of practice included are (1) full-time general practice, (2) general practice with particular attention to a specialty (i. e., part-time specialists), and (3) full-time specialty practice. The distribution of the physician population on the basis of these criteria is shown in the table.

Practicing Physician Population and Questionnaire Returns by Field of Practice

	Practicing Physician Population *		Questionnaire Returns	
	No.	%	No.	%
Total	167,939	100	4,923	100
General practice	106,809	63.6	2,204	44.8
Full-time general practice	81,786	48.7	1,197	24.3
Part-time specialists	25,023	14.9	1,007	20.5
Full-time specialists	61,130	36.4	2,621	53.2
Unspecified	.....	....	98	2.0

* These figures were derived as follows: The total United States physician population was 220,104 as of Dec. 31, 1953, as estimated by the A. M. A. American Medical Directory. According to "Distribution of Physicians by Medical Service Areas," (table 3, p. 68) of the American Medical Association published in 1954, 76.3% of all physicians are in active private practice. Taking this percentage of 220,104 gives a total practicing physician population of 167,939. Using percentages of this base derived from the data in the A. M. A. report, it was possible to arrive at the estimated totals for each field of practice.

It should be noted that over 60% of the practicing physician population consists of general practitioners, who were noticeably under-represented in the questionnaire returns, especially in the Southwest but noticeably so in all except the Great Lakes, Plains, and Pacific areas. There is a tendency to associate postgraduate education primarily with the general practitioner. This perhaps reflects an assumption of greater need for such work among this group as compared to specialists, who have had years of graduate training, in addition to the greater breadth and complexity of general practice. The general practitioners in this study devoted somewhat less total time to continuing their education than did their specialist colleagues, averaging 67.8 days per year as compared to 81.8 days for part-time specialists and 93.6 days for full-time specialists. In general, the full-time specialists devoted a greater percentage of this time to hospital staff and medical society meetings, while general practitioners devoted more of their time to postgraduate course attendance. The fact that hospital and medical society meetings are oriented more to the needs of specialists makes them relatively less useful to the general practitioner, and the very breadth of the field makes journal reading less suitable to his needs. It is understandable therefore that the average general practitioner in this survey felt the need to increase by over three times the amount of time devoted to postgraduate medical education, much more than did the specialists (fig. 1). It is probable that the present dearth of postgraduate opportunities designed specifically for general practitioners accounts in large measure for their lower level of postgraduate attendance.

Specialists' needs are met somewhat differently than those of general practitioners. Not only do they participate more actively in hospital and medical society meetings, but the nature of their practices brings them into closer professional contact with their colleagues as well as with medical students, residents, and others. Nevertheless, it is also evident that specialists spent a somewhat larger amount of time in postgraduate courses than the other groups. This may be due in part to the fact that over 10% of the 1952-1953 postgraduate hours offered were restricted to specialist enrollment and that this group of courses accounted for over 25% of the total physician-hours attendance in that year. Out of a total of 139,477 hours, 14,362 were restricted to specialists, and attendance at this group of courses amounted to 381,444 physician-hours out of a total of 1,481,061. It has often been stated that the many years of graduate training a specialist receives minimizes his need for and interest in postgraduate work, but figure 2 shows that, among respondents to the questionnaire, the longer the period of hospital training the more time spent each year in postgraduate education. It would appear, therefore, that increased training stimulates a desire for further postgraduate work, rather than reducing it.

The part-time specialist stands somewhere between the general practitioner and the full-time specialist in most respects, but because of his tendency to give special attention to one aspect of medicine, in which he generally

1. Rusk, H. A.; Diehl, H. S.; Barclay, R. W., and Kaetzel, P. K.: The Work Week of Physicians in Private Practice, New England J. Med. **249**: 678-681 (Oct. 22) 1953.

2. Vollan, D. D.: Scope and Extent of Postgraduate Medical Education in the United States, J. A. M. A. **157**: 702 (Feb. 26) 1955.

has limited formal training, he is probably the largest consumer of special postgraduate courses limited to a narrow field of medicine.

One of the greatest needs in postgraduate medical education today is for more and better opportunities for the general practitioner. Because of his relative isolation professionally, the limiting of his training to perhaps one or

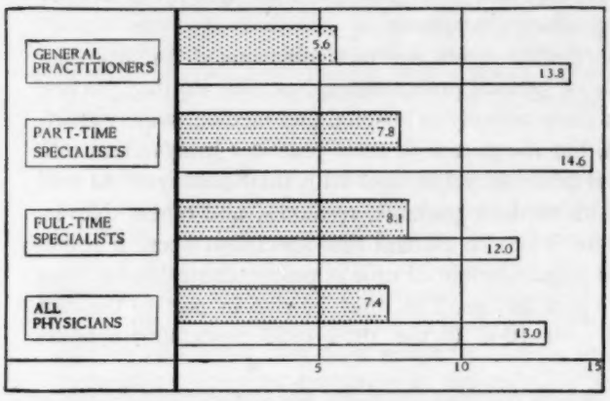

Fig. 1.—Mean number of days per year actually devoted to postgraduate courses by physicians responding (dots) and the number they felt they should devote (solid white), by field of practice.

two years of internship after graduation, his relative lack of hospital appointments, and the specialty orientation of medical meetings and journals, the general practitioner is in greater need of formal postgraduate education than the specialist. Medical teaching has fallen more and more into the hands of the specialists in recent years, and, as a result, medical faculties often fail to appreciate the demands of general practice. They may not realize the de-

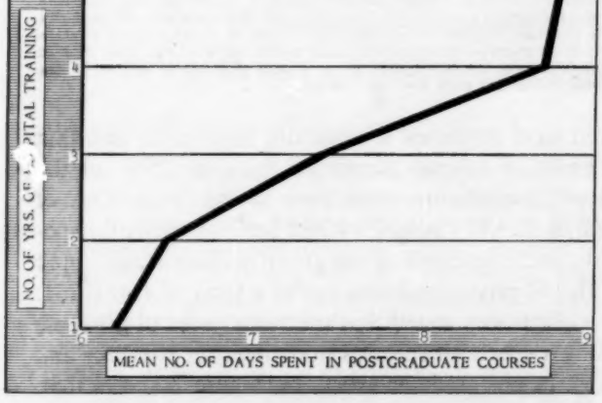

Fig. 2.—Number of years of hospital training (internship and residency) related to mean number of days per year attendance at postgraduate courses by physicians responding.

gree of competence required of an isolated physician as compared to the medical-center specialist who can always fall back on his colleagues for further consultation. As Osler said [3]:

> There are many problems and difficulties in the education of a medical student, but they are not more difficult than the question of the continuous education of the general practitioner. Over the one we have some control, over the other, none. The university and the state board make it certain that the one has a minimum, at least, of professional knowledge, but who can be certain of the state of that knowledge of the other in five or ten years from the date of his graduation? The specialist may be trusted to take care of himself—the conditions of his existence demand that he shall be abreast of the times; but the family doctor, the private in our great army, the essential factor in the battle, should be carefully nurtured by the schools and carefully guarded by the public. Humanly speaking, with him are the issues of life and death, since upon him falls the grievous responsibility in those terrible emergencies which bring darkness and despair to so many households. No class of men needs to call to mind more often the wise comment of Plato that education is a lifelong business.

Type of Practice.—Whether a physician practices alone, as a member of a group or clinic, or in an institution such as a hospital or medical school, he would be expected to influence his use of postgraduate opportunities. The solo practitioner may have difficulty finding someone to "cover" his practice at the particular time he wants to take a course. On the other hand, individual members in a group practice may be expected to take postgraduate

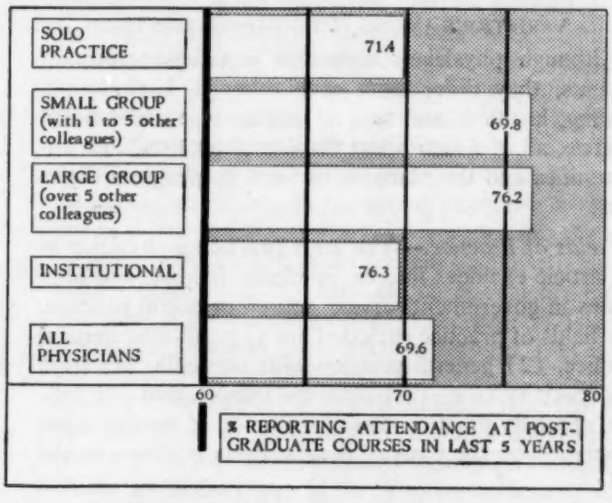

Fig. 3.—Percentage of physicians responding who reported attending postgraduate courses in the previous five years, by type of practice.

work at regular intervals as a normal part of their professional activity. An analysis of figure 3 shows that in small groups (one to five colleagues) and large groups (over five colleagues) higher percentages of physicians attended postgraduate courses than was true for those practicing alone, although the percentage was relatively low for those in institutional practice. Although fewer single practitioners have the opportunity to take postgraduate work at all, those who do apparently take somewhat larger amounts than those in group practice, probably because solo practitioners arrange for a locum tenens on a definite basis for a specific time. The present tendency is for more physicians to enter group practice, and, if the present percentages continue a general increase in the use of postgraduate opportunities can be expected in the future.

Location of Practice.—Closely related to type of practice is the size of the city in which a physician is located. With the exception of a somewhat low number of returns from physicians in very small towns, the questionnaire returns were representative in this respect. Figure 4

3. Osler, W.: The Educational Value of the Medical Society, read before the Centennial Celebration of the New Haven Medical Association, New Haven, Conn., Jan. 6, 1903.

indicates, contrary to expectations, that there is a general tendency for the percentage of physicians attending postgraduate courses to increase as the population of the city decreases. The somewhat lower percentage of attendance in large cities can probably be explained by the greater dependence on hospital and medical society meetings, as well as the number of professional contacts among this group as compared with those in small towns. Furthermore, the city physician often has great difficulty attending courses in his own city because of the constant interruptions of his practice, and in the suburbs he may be discouraged from using nearby city opportunities because of traffic and other problems. In fact, many postgraduate medical educators questioned in this study observed that the majority of physicians attending their courses were from outside of the city in which the courses were given. Nevertheless, the average number of days attendance per year was highest for the physicians in large cities and lowest for those in the smallest towns. The highest consistent levels on both counts were found among physicians in cities of 100,000 to 250,000 population.

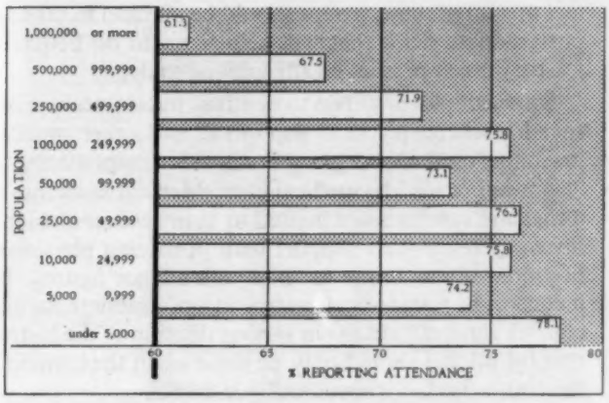

Fig. 4.—Percentage of physicians who reported attending postgraduate courses in previous five years, by population of place of residence.

Number of Years in Practice.—The age of physicians can generally be considered a function of the number of years he has been in practice, the latter being of special significance in this study. The questionnaire returns by age were generally representative, except for some underrepresentation for those under 30 years or over 60 years of age. Figure 5 shows a gradual rise in the percentage of physicians attending postgraduate courses as the number of years in practice increases up to a peak at 14 to 18 years, after which there is a gradual decline up to 39 to 43 years, after which a marked reduction in percentage takes place. This pattern was generally valid for all fields of practice, although the percentages for general practitioners were noticeably higher in the early years. The average number of days attendance per year for all physicians, however, gradually fell as the number of years in practice increased. A specially interesting factor was that the average number of days attendance per year started high, fell in the middle years, and ended high for full-time specialists, whereas the exact opposite was the case for general practitioners. All things considered, it appears that the heaviest demand for postgraduate education from physicians comes between 10 and 30 years after graduation. These are also probably the most active years in practice.

The future of medical care rests on the shoulders of the young graduates of the last few years, this year, and the coming years. Long-term planning in postgraduate medical education is inevitably concerned primarily with this group. It has been found by some observers that there is a tendency for a little high-quality postgraduate education to stimulate interest for more. By concentrating efforts on carefully planned programs for young graduates it may be possible to develop in them the habit of returning to further postgraduate study year after year. It is paradoxical, however, that this is the very group who can least afford the financial burdens involved, for which reason some form of early subsidization in order to establish postgraduate study habits might be considered. Such programs could result in a profound impact on the level of medical care 20 years from now, if not sooner.

Medical Society and Hospital Staff Alignments.—It has been suggested that physicians who do not have medical society or hospital staff affiliations are also the ones who do not attend postgraduate courses. An analysis of the postgraduate habits of the physicians responding to the questionnaire showed that a significantly higher percentage of state and county medical society members attended postgraduate courses than was true for nonmembers (fig. 6). Among members of national specialty or general practice societies there was also a significantly greater percentage of attendance than among nonmembers, and the same applied to physicians with hospital affiliations as compared with those without such affiliations. Since medical society and hospital meetings constitute a part of the total continuing education of physicians, it appears that there is a stimulating factor in these activities that results in the desire for more, rather than less, postgraduate education. This is important to those who fear that postgraduate education may in some way endanger the continued development of medical societies. It also indicates that nonmembers are receiving a minimum of postgraduate education as well as losing the educational benefits of associations with their colleagues at medical society meetings and hospital staff functions.

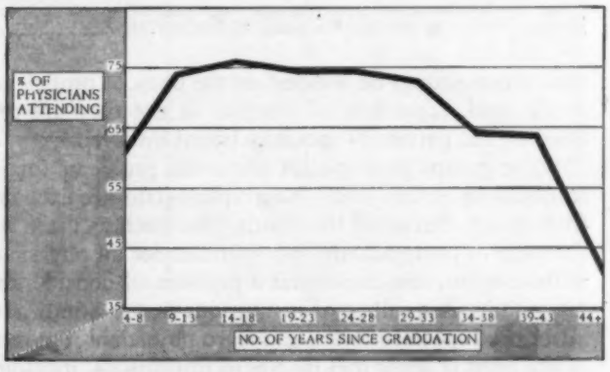

Fig. 5.—Percentage of physicians who reported attending postgraduate courses in previous five years, by number of years since graduation.

Admission Policies in Postgraduate Medical Education.—Admission to most postgraduate courses is generally dependent on submission of an application and the

necessary tuition fee. Requirements vary considerably from one institution to another, but most require the physician-student to have an M.D. degree from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association. In addition, some require an internship or some evidence of residency training, others certification in a specialty, still others licensure to practice in the state, and some require local county medical society membership. Some institutions will not allow attendance at advanced courses in certain fields until definite prerequisite courses have been completed. It is indeed questionable whether advanced work in such things as complicated surgical techniques or in the use of potentially dangerous radiological materials, for instance, should be open to any but qualified men capable of using such knowledge judiciously. However, many educators agree with O'Brien [4] that the stu-

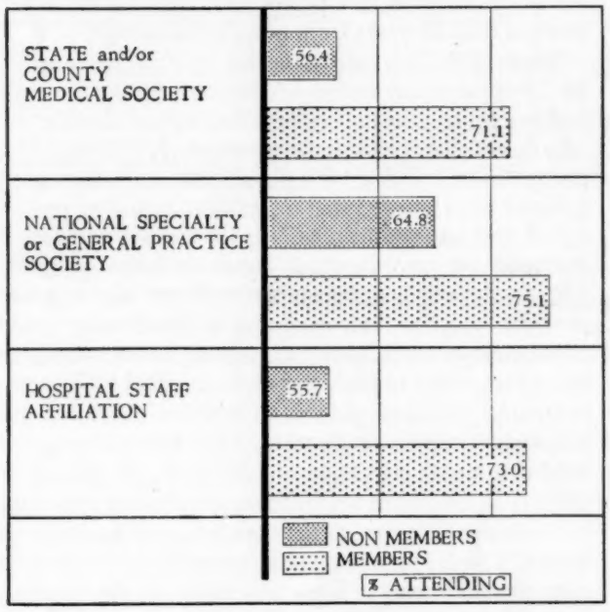

Fig. 6.—Percentage of physicians who reported having attended postgraduate courses in previous five years, by hospital or society affiliation.

dent group should be selected on the basis of proficiency in the field, regardless of whether or not they are certified by the particular specialty board involved.

Some groups pose special admission problems for institutions in certain areas. Negro physicians are excluded from many courses in the South. Inasmuch as there is a shortage of postgraduate opportunities for all physicians in this region, this constitutes a problem of considerable magnitude. A number of institutions in the South have introduced special courses for Negro physicians, but most of the need is being met by Negro institutions, including medical schools, medical societies, hospitals, and general universities, many of which sponsor regular refresher programs. It is probable, however, that the recent tendency for southern medical societies to admit Negro members and the general educational readjustment now taking place in the South will do much to equalize the postgraduate opportunities of Negro and white physicians in the years ahead.

4. O'Brien, W. A.: The Development of the Continuation of Medical Education, in Trends in Medical Education, edited by M. Ashford, New York, the Commonwealth Fund, 1949, p. 222.

In some states the graduates of defunct and former eclectic medical schools pose special problems of admission. And in others the recent influx of foreign graduates further complicates the picture because of language difficulties as well as divergent backgrounds. Since osteopaths are licensed to practice medicine and surgery in some states, the state-controlled medical schools in those states have often been expected to admit them to their postgraduate courses. Most medical educators seem to feel that all of these groups should be allowed to take any postgraduate work that will help them to do better the job they are at present legally entitled to do.

Some courses are open to dentists, nurses, technicians, social workers, physical therapists, and other ancillary personnel on the theory that it will aid in emphasizing the "team approach" to medical care. Medical students, interns, and residents are invited to many courses, ostensibly to increase their rapport with practicing physicians, but more often simply to "pad" attendance figures. The inclusion of nonmedical groups in postgraduate medical courses generally results in serious dilution of the instruction for all and should only be done when the content of the course makes it specifically desirable.

OBSTACLES TO POSTGRADUATE ATTENDANCE

Before discussing the specific obstacles that deter greater use of postgraduate medical education, it is necessary to point out that there are two opposite groups of physicians involved: those who apparently find time to take a great deal of postgraduate work and those who do not attend at all. Figure 7 shows that 29.2% of the physicians responding to the questionnaire reported having attended no postgraduate courses in the previous five years. About 8% averaged one course per year. About 40% averaged less than one and 15% more than one course each year. One southern medical school found that over five years' observation only one out of 276 physicians returned to that school for postgraduate work each year, only 2 attended four of the five years, only 9 attended three years, and 35, or 12.7%, attended two years, so that only about 23% repeated even once during the five year period. On the other hand, a medical school in the West has found over a number of years that about 20% of the physicians attending their courses return every year. It is apparent, therefore, that there is at least a small group of physicians who do not encounter serious obstacles to such work or have found ways to surmount them.

One of the questions in this survey dealt with the relative importance of the various deterrents to postgraduate course attendance. In general the relative importance ascribed to each deterrent was about the same for all fields of practice, with the few exceptions mentioned in the following discussion (fig. 8). The most important deterrent was the lack of someone to care for the physician's patients while he is away. Over half of the respondents (for general practitioners alone it was nearer 70%) ascribed importance to this factor. Since many physicians do attend postgraduate courses without detriment to their patients, there must be solutions to this problem, which are discussed below. Almost half of the respondents considered an important deterrent to be the unsuit-

able times at which courses are offered. This was a relatively less significant factor to full-time specialists, who apparently enjoy somewhat more flexible time schedules than general practitioners or part-time specialists.

The cost involved in postgraduate course attendance, mentioned by over 40% of the respondents, was the next most frequent deterrent. Since most of the tuition fees charged for postgraduate courses are quite reasonable,

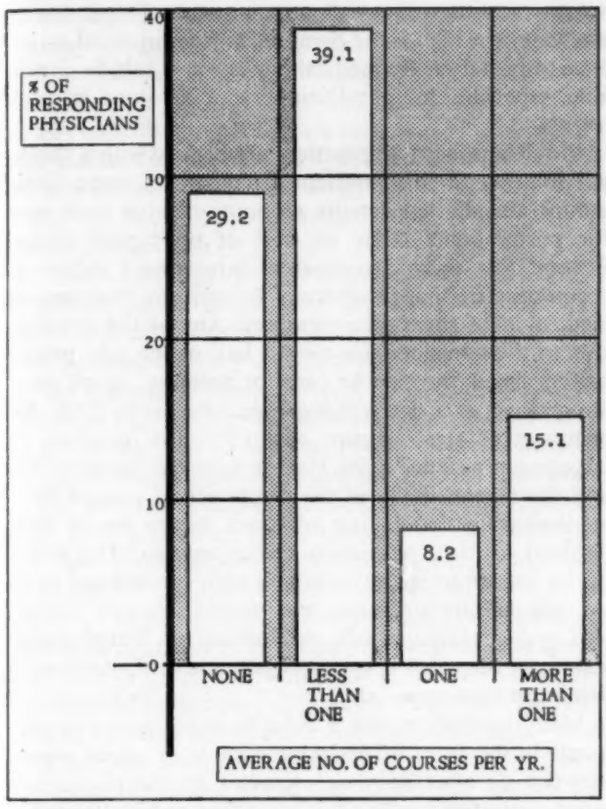

Fig. 7.—Average number of postgraduate courses attended each year by physicians responding to questionnaire. Unknown, 8.8%, not included on graph.

it is probable that the most significant items of cost are the travel and living expense and loss of income from practice. The multiplicity of hospital and medical society meetings was also an important deterrent to over 40% of the respondents, especially among the specialists, who are likely to have more hospital appointments and medical society memberships. In the first article of this series [2] the value placed on such meetings as a contribution to the continuing education of the physician was shown to be quite low among physicians responding to the questionnaire. Although such meetings may be necessary for maintaining high standards of hospital care, the time that they require can become a serious deterrent to postgraduate study for the man who is on the staffs of several hospitals. By restricting such meetings to their primary purpose, it should be possible to minimize this obstacle. Of equal importance are the frequent medical society meetings. It has been suggested that medical societies in a given area join forces in sponsoring a few superior programs rather than many individual inferior ones that draw only a handful of physicians. Such procedures would strengthen the total program of the organizations involved and would leave the physician more time for formal postgraduate education. Everything that can be done to make possible the efficient use of the busy physician's time will ultimately benefit medicine generally.

The fact that the subject matter of courses did not meet their needs deterred 40% of the respondents from attending. This factor was relatively more important to general practitioners than to specialists. This emphasizes the need for more adequate analyses of content needs by postgraduate program directors. Almost a third of the respondents listed the lack of availability of courses in their areas as an important deterrent. This rated slightly higher on the scale of importance among general practitioners than among specialists. This is in part due to the general maldistribution of courses mentioned in the first article of this series.[2] Previous unsatisfactory experience with poor courses apparently kept about one-fifth of the respondents from returning to later postgraduate courses. Many groups, in their zeal to "put on a show"—i. e., postgraduate courses—have done so without knowledge of the problems involved and without adequate preparation, resulting in a disappointing experience to the physician-students. It would be far better that such courses were never offered than that they result in driving off a few

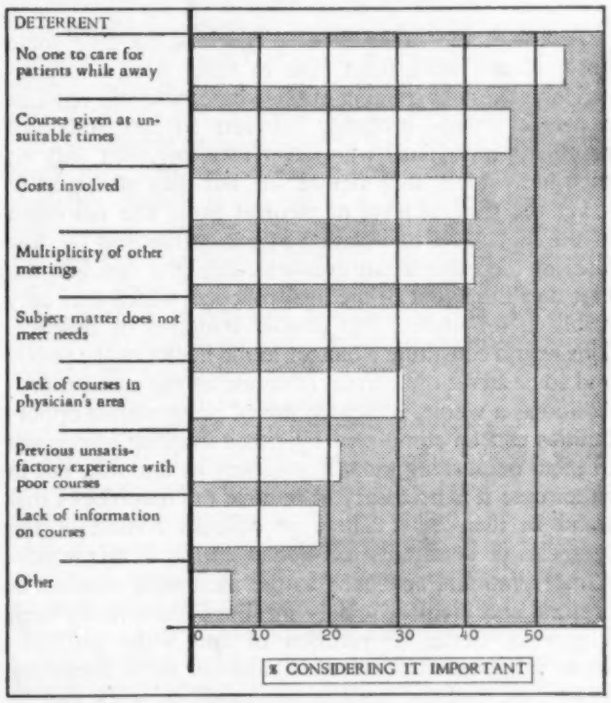

Fig. 8.—Percentage of physicians responding who considered various factors to be important deterrents to their attendance at postgraduate courses.

potential lifelong students of medicine. It is the responsibility of program directors and committees to consider the far-reaching implications of their courses in their planning.

Lack of information on the availability of courses was important to about a fifth of the respondents. This lack of adequate announcement and publicity will be discussed in a later article of this series, as will scheduling, costs,

and the need for better geographical distribution, improved content analysis, and consideration of the far-reaching implications of course planning. Respondents gave a number of other reasons for not attending postgraduate courses, including sickness, semiretirement, recency of graduation or residency training, other "extracurricular time-consuming interests," family responsibilities, medical teaching duties, repetition in the courses, poor transportation facilities, bad weather, research, and in some cases being too busy or, frankly, too lazy. In addition, some physicians avoid postgraduate medical education because of long-standing misunderstandings between practicing physicians and medical school faculties. Some physicians feel they cannot absent themselves from their offices for postgraduate work because of the criticism of their patients for not being available. This can be remedied in part by educating the public of their physicians' need to keep up to date for their benefit. Bruce [5] reported the use in 1935 of regular newspaper announcements requesting the cooperation of the public in refraining from requests for nonurgent medical services during the hours in which an extramural circuit program was being offered in a particular town in Michigan. Such devices could be of help in other places to obviate the fears of patients.

STIMULATING BETTER USE OF POSTGRADUATE MEDICAL EDUCATION

Although the majority of physicians do take some postgraduate work from time to time, with a few receiving abundant training of this kind, there still remains a sizable group—probably between 30 and 50%—of practicing physicians who never take any. Not only do such individuals hurt themselves, but they also tend to lower the general level of medical care. The net effect of the high level of learning of one group and the low level of the other is an ever-widening gap between the best and the worst of medical practice, which can only result in an undesirable double standard of practice. This would constitute a danger to the health of the public and so deserves the careful attention of the medical profession as a whole. Increased use of postgraduate opportunities can be stimulated by either drawing physicians to them or pushing them in one way or another, but in either case it is necessary to remove the roadblocks that stand in their way. These roadblocks consist of the obstacles or deterrents mentioned earlier in this article. A more rational approach to the increasing number of hospital and medical society meetings has already been suggested. Better distribution of and wider publicity about postgraduate courses is essential if the needs are to be met, and the costs of postgraduate work can be eliminated as a significant deterrent by making them legitimately deductible for income tax purposes. This still leaves the chief deterrent, namely, the lack of someone to care for the physician's patients while he is away taking postgraduate courses.

The single practitioner has two choices of solution to this problem. He can have his practice "covered" by a colleague while he is away, but it is obvious that this is only of value for emergencies during short periods, since no physician can properly handle two complete practices for any length of time. For longer periods he must obtain a locum tenens, but the dearth of information on the availability of such replacements and the shortage of high-caliber men for such work make this difficult. This obstacle to postgraduate medical education could be materially reduced if all state and county medical societies were to develop sound placement services with a locum tenens pool that might well include residents who are on vacation or between appointments. This is one of the ways in which some form of outside financial assistance to postgraduate medical education would be justifiable, especially for physicians practicing alone in small towns.

Physicians in group practices are blessed with a "built-in" solution to this problem. Members of some clinic groups are allotted definite amounts of time each year for postgraduate study as part of their paid duties. Beyond this there are inherent educational values in group practice that result from the constant exchange of medical ideas among the members. Among the respondents to the questionnaire almost half of the solo practitioners listed "no one to care for patients" as of great importance as a deterrent, compared to only 25% for members of small groups and 15% for members of large group-practice units. Having removed the obstacles, it is the responsibility of the producers of postgraduate medical education to use whatever means are at their disposal to draw physicians to the courses. The surest device for attracting physicians is high educational quality with definite objectives and careful selection of content, pedagogical methods, and instructors. Sound organization of time and place arrangements and attention to detail are also required.

Many institutions use a number of secondary enticements in the form of desirable climate or social events between or after sessions. Appeals to the physician's sense of prestige can be made by recording his attendance at postgraduate courses in the local medical society journal or even in his home-town newspaper. Stimulus for study may come from the often embarrassing questions of patients who are informed of new medical developments through articles in lay publications. More important is the impetus that derives from conversations with colleagues who have just returned from periods of postgraduate study. It is to be hoped that such contacts might eventually develop into a chain reaction of postgraduate study throughout the profession. A more formal method of drawing physicians to postgraduate courses is offering a certificate or diploma of some kind, but there may be a tendency for such "diplomas" to be misused as indications of specialty training. On the other hand, if a certificate with regular periodic endorsements issued under the sponsorship of a large medical organization were to become known among the public as evidence of the physician having kept up-to-date, it would have considerable value.

If the removal of obstacles and the various inducements mentioned fail to bring about more adequate postgraduate medical education among some members of the profession it may eventually become necessary to consider the use of requirements that would necessitate continuing education by physicians. Some medical societies

5. Bruce, J. D.: Postgraduate Education in Medicine, J. Michigan M. Soc. **36**: 369 (June) 1937.

already require postgraduate work in order for members to advance from one level of ordinary membership to fellowship. The American Academy of General Practice requires its members to show evidence of 50 hours of formal postgraduate work every three years in order to retain membership in the organization, and the recently organized College of General Practice of Canada requires 50 hours of formal postgraduate work every two years. Some have recommended that hospital staff membership be controlled in a similar manner, on the ground that, if the physician can demand hospital facilities from the community, it is the community's right to demand that the physician in turn be well trained and up to date at all times. It is apparent however, that neither of these approaches reaches those physicians lacking affiliations with medical societies or hospitals, who were shown earlier to be the ones in greatest need of postgraduate medical education.

A more severe application of the requirement principle would be the introduction of periodic state relicensure in order to continue the practice of medicine. This is not a new concept, as it was suggested by the then President of the American Medical Association almost 20 years ago [6] and by the Commission on Medical Education five years earlier,[7] not to mention many more recent statements on this subject. Most of the persons interviewed in this study who expressed their views on the question were of the opinion that some sort of compulsory relicensure program was consistent with the responsibility of medicine to assure optimum medical care to the public. Whether this should be done by requiring a certain amount of time in attendance at postgraduate courses periodically or by reexamination at intervals is a problem fraught with many difficulties. Perhaps a combination of the two would be found most desirable. Whatever method is employed, a serious hardship would be imposed upon older physicians, unless the system were introduced gradually as a requirement for new graduates only. In the long run a system of this type could effect habits of regular study in the new physicians added to the profession, who in the years ahead may be expected to carry on without such stringent requirements. The whole problem of designing specific and effective methods of inducement toward further postgraduate medical education requires further study and concerted action by all of the medical groups involved.

COMMENT

Physicians constitute a unique group of students when compared to medical students, interns, or residents. This uniqueness is due to three factors: 1. Physicians have different sources of motivation that are devoid of tangible reward. 2. Physicians are mature adults with considerable prior knowledge and experience in the subjects they are studying, which makes their approach to the material presented different from that of undergraduate students. 3. Physician-students are always physicians first and students second, which necessitates the most efficient possible use of their study time. It is recommended that all postgraduate programs be specifically designed with these factors in mind rather than as mere extensions of the undergraduate or graduate programs of medical teaching institutions.

Physicians also differ with respect to fields, types of practice, and other factors, and special course planning is therefore necessary to meet specific postgraduate needs. The greatest need and desire for additional postgraduate work exists among general practitioners. It is recommended, therefore, that postgraduate programs of all types designed specifically for general practitioners be increased considerably and labeled clearly as such, keeping in mind the breadth and scope of the general practice of medicine.

Physicians in their busiest years—the middle years—are more likely to attend postgraduate courses than their younger or older colleagues; however, in order to establish lifelong habits of study in the physician, it is recommended that whenever possible separate courses be added to existing postgraduate programs for physicians who have recently entered practice. These could be specifically designed to keep this group up-to-date by regular annual or semiannual refresher work.

The fact that the physician has no one to care for his patients while he is away is the most important deterrent to his use of postgraduate opportunities, particularly among solo practitioners. It is recommended, therefore, that organized medicine at appropriate levels take upon itself the responsibility of making available adequate numbers of qualified replacements for physicians in need of postgraduate work. The fact that group practice allows time for the members of the group to take regular postgraduate work should be carefully considered in future deliberations on the general problem of group practice. Physicians in small towns (except the very smallest towns) were somewhat more inclined to take some postgraduate work than their colleagues in large cities. The lack of available courses in the physician's locale is one of the important reasons for not attending. It is recommended that the present maldistribution of postgraduate opportunities be checked by means of regional planning related to population centers and distribution. It is further recommended that some sort of subsidization plan be considered for young physicians settling in rural areas that would enable them to get away regularly for postgraduate work during the first 5 or 10 years of practice.

Members of medical societies and hospital staffs showed a tendency to greater use of postgraduate opportunities than nonmembers, but one of the chief deterrents to more extensive postgraduate attendance was the multiplicity of medical society and hospital meetings. It is recommended that consideration be given to consolidating some of these numerous meetings in the interest of better meetings and freeing the physician's time for more formal postgraduate study. Other important factors that mitigate against the use of postgraduate courses by physicians are the unsuitable times at which they are given, lack of information as to their availability, previous unsatisfactory experience with poor courses, and the costs involved, all of which will be discussed later in this series.

Physicians vary considerably in their use of postgraduate opportunities, from the third who reported no attendance in the last five years to the sixth who attend more

6. Upham, J. H. J.: The Advancement of Medical Education, J. A. M. A. **108**: 2010 (June 12) 1937.

7. Rappleye, W. C.: Final Report of the Commission on Medical Education, New York, Office of the Director of Study, 1932, p. 136.

than one course a year on the average. There remains a significant group who are probably in greatest need for postgraduate medical education but who do not receive sufficient stimulus. Assuming that the obstacles mentioned above have been removed or at least minimized, it is recommended that major emphasis be placed at this time on drawing physicians to postgraduate courses by greatly improving their quality and by adding secondary inducements when indicated. Should this fail to elicit the attendance of those most in need, it is recommended that methods be considered that would necessitate regular postgraduate study in order to continue practice. It is further recommended that this matter be given lengthy and careful objective study by the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges, and the Federation of State Licensing Boards. Medicine has been the leader among the professions in regard to professional standards, and it may well take the lead again in considering this problem.

The Board of Trustees of the American Medical Association, with the approval of the House of Delegates, appointed a committee that has been called the Committee on Relationships Between Medicine and Allied Health Agencies. Several articles will appear under the auspices of the committee explaining the origin, organization, and work of some of the well-known agencies. Following is the second of the series.—ED.

AIMS AND PROGRAM OF THE NATIONAL TUBERCULOSIS ASSOCIATION

James E. Perkins, M.D., New York

Fifty years ago last June, in 1904, the American Medical Association held its Annual Meeting in Atlantic City, N. J. This meeting was particularly notable because many of the leading physicians of that time took advantage of that meeting to establish the National Association for the Study and Prevention of Tuberculosis, later simplified to National Tuberculosis Association. These leaders included, among many others, William Henry Welch, William Osler, Hermann M. Biggs, Edward Livingston Trudeau, and Lawrence F. Flick. The establishment of this pioneering voluntary health agency in connection with an Annual Meeting of the American Medical Association is symbolic of the close and cordial relationships that have existed between the two associations for over half a century. The chief way in which this new association was different from preceding organizations was that it represented a definite combination of medical and nonmedical interests unified to tackle a specific health problem that Sir William Osler characterized as "a social problem with medical aspects." Also, an early aim was the development of effective state and local organizations to carry on the voluntary activities for tuberculosis control, rather than having this done through a national office.

The early objectives of the association were the study of tuberculosis in all of its forms and relations, the dissemination of knowledge concerning the causes, prevention, and treatment of tuberculosis, and the encouragement of the prevention and scientific treatment of tuberculosis. Subsequently, additional objectives were adopted. They were the stimulation, unification, and standardization of the work of the various antituberculosis agencies throughout the United States, especially the state and local associations; cooperation with all other health organizations related in any way to the control of tuberculosis; and the promotion of international relations in connection with the study and control of tuberculosis. With some changes in language, these objectives remain the same today, although with the advancement of knowledge about tuberculosis and recognition of its multiple causation, the association's interests have been expanded to include related health and social problems. A combination of medical and nonmedical leadership has continued as one of the outstanding attributes of the National Tuberculosis Association. The association has a membership open to anyone interested in its objectives and activities. It has a medical section known as the American Trudeau Society, members of which must be physicians interested in tuberculosis and related diseases; over 5,000 physicians are members.

Managing Director, National Tuberculosis Association.

ORGANIZATION

The policies of the National Association are determined by a board of directors of over 100 members. Of this number, 56 are representative directors, nominated directly by the constituent associations (the 48 state associations, Alaska, Hawaii, Puerto Rico, the District of Columbia, and a few large city associations). Fifty are directors-at-large. Fifty-eight per cent of the total members of the board are physicians. The remaining 42% include businessmen, educators, lawyers, clergymen, publishers, farmers, nurses, social workers, and housewives. The board of directors meets at least three times every year. A high proportion of the board members serve on working committees concerned with studying various aspects of the tuberculosis problem and recommending policies for consideration by the national board.

Since the creation of the association, all but three of its presidents have been medical men. Presidents serve for a term of one year, and members of the board are elected for a term of two years. While the national board of directors determines broad operating policies for its constituent and affiliated associations, the actual conduct of the program of the state and local areas is carried on by local boards of directors and staffs of state and local associations. Here, too, the combination of medical and nonmedical leadership provides the guidance necessary to keep local programs sound and carefully attuned to meet local needs. In addition to the 56 constituent associations, there are some 3,000 local associations, of which slightly more than 1,000 employ executive secretaries to carry out the programs planned by their boards of directors. Of the slightly more than 3,300 board members of constituent associations, 24% are physicians. Of the local associations, 1,036 have reported a total board membership of 28,331 persons, of whom 11% are physicians.

The national office maintains a staff for carrying on its activities and providing consultative service to its constituent and affiliated associations. The staff is under the direction of a managing director. This position has always been filled by medical men, namely, Dr. Livingston Farrand from 1905 to 1914, later president of Cornell University; Dr. Charles J. Hatfield, 1914 to 1922, director

of the Henry Phipps Institute of Philadelphia; Dr. Linsly R. Williams, 1922 to 1928, later director of the New York Academy of Medicine; Dr. Kendall Emerson, 1928 to 1948; and myself, 1948 to the present. The staff is organized into broad units, covering medical activities, public information, nursing, and field program. In the medical section, the American Trudeau Society, are the divisions of medical research and medical education, and publication of the professional journal of pulmonary diseases, the *American Review of Tuberculosis*. In public information are included activities in health education, public relations, and social research. Included in field program are divisions of program development, rehabilitation, and Christmas Seal Sale.

PROGRAM

The research program of the National Tuberculosis Association, by board policy and contract with the constituent and affiliated associations, calls for an expenditure of at least 16% of the total national budget. In addition, a number of state associations provide direct funds for research activities, and many local associations make additional voluntary financial contributions to the research fund of the association. The national budget is derived almost entirely from 6% of the gross Christmas Seal Sale throughout the country. The medical research program consists basically of two major parts: One is the awarding of research fellowships to stimulate the development of future research personnel interested and skilled in problems of tuberculosis and pulmonary disease; the other part of the program consists of grants to existing universities, hospitals, and laboratories for carrying on specific research activities. Grants are determined by a medical research committee composed of scientists from all parts of the United States. One outstanding phase of the work of this committee is an annual meeting, during which each recipient of a medical grant gives a report before all other research persons receiving grants.

The National Association maintains an active program of medical education, with the purpose of providing improved clinical teaching in diseases of the chest in undergraduate medical schools, assisted in part through subsidizing qualified professors and through the training of such teaching personnel through the awarding of teaching fellowships. This program has only recently been developed, and it is anticipated that it will receive additional funds and stimulation through the participation of state and local associations. The second major objective in medical education is the stimulation of postgraduate education through medical meetings, consecutive case conferences, and other means.

The social research program, which was developed on a more comprehensive scale in 1954, undertakes through grants and fellowships to stimulate research in social problems related to the control of tuberculosis. A social research committee and the staff maintain close liaison with the medical research program, since there is no clearly defined border between the two. Activities in the field program section include those dealing with overall phases of tuberculosis control programs, case finding, and rehabilitation. Close working relationships have been established not only with the American Medical Association but also with the American Hospital Association, the American Academy of General Practice, the Public Health Service, and various other groups in the promotion of routine x-ray examination of the chests of all patients admitted to general hospitals. Medical leadership and guidance is also sought for the many social, vocational, and extraclinical activities included in the program aimed at the rehabilitation of the patient.

ROLE

The basic role of tuberculosis associations as voluntary organizations is to serve as a supplement and stimulant to the development of effective community-wide programs for tuberculosis control. Associations are urged to limit their direct patient service activities to emergencies and to the demonstration of new activities. Such demonstrations are undertaken after careful investigation and analysis of local situations. The prime aim of the associations is to so educate the citizens of every community that they will utilize existing private and government facilities for the diagnosis, treatment, and prevention of tuberculosis and establish such facilities where they are lacking.

Since nutrition, housing, working conditions, and standards of living in general are important in the control of tuberculosis, as well as the more specific phases of the program aimed directly at the causative micro-organism, tuberculosis associations are keenly aware of the necessity of their being interested in the development and maintenance of adequate official health and welfare agencies and the need to work cooperatively with other official and voluntary agencies. It is for this reason that the state and local associations participate in state and local health councils and councils of social agencies, and this is the reason why the National Tuberculosis Association has strongly supported the National Health Council as well as maintaining close liaison directly with the Public Health Service of the Department of Health, Education, and Welfare, the Department of Medicine and Surgery of the Veterans Administration, and other official and voluntary national health agencies.

Since tuberculosis as a communicable disease respects no boundaries and there is progressively greater mixing of the peoples of all nations, the National Tuberculosis Association has played a progressively greater role in the international aspects of the control of tuberculosis, principally through taking an interest in the World Health Organization and helping in the development of a stronger and more effective International Union Against Tuberculosis, a federation of national tuberculosis associations. This international interest is not a new development but merely one of emphasis, for among the reasons given for establishing the National Tuberculosis Association at the time of the Annual Meeting of the American Medical Association in Atlantic City in 1904 were two of international significance: One was the need to designate suitable delegates to attend an international conference on tuberculosis to be held in Paris the following year; the other was to establish a suitable organization to arrange for a similar international conference in the United States, which was held in Washington, D. C. in 1908, under the chairmanship of President Theodore Roosevelt.

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FINANCING MEDICAL EDUCATION

Our survival as a nation depends among other things on the vigor and health of our citizens. These in turn depend on adequate housing, sanitation, nutrition, emotional security, and medical care. Physicians play an important part in providing or assuring the provision of all of these. Medical service is steadily improving, and the public demand for it is increasing, but the present precarious financial state of our 80 medical schools is a serious threat to the continuance of the high quality of medical service now available (to say nothing of further improvements) and therefore a threat to our survival. Medical schools currently need a total of about 132 million dollars a year to operate.[1] This is because laboratory and clinical teaching require expensive equipment and must be limited to small groups of students and because our medical schools are engaged in necessary but costly research without which there would be no progress.

Among the standard sources of income of medical schools tuition accounts for only 20 million dollars, or between a half and a fourth of the actual cost of educating a student. This is an important point to remember in connection with the creation of scholarship funds, because for every such fund that provides tuition only, the medical school must find as much or more in order to do its part in educating the student. It is seriously recommended that philanthropists revise their thinking and when creating scholarships make at least a matching amount available to the medical school. The suggestion that medical schools raise their tuitions to bring them more closely in line with costs is unwise, as it would greatly reduce the number of applicants from which the schools could select their students and thus inevitably reduce quality. Cutting budgets is possible only to the point of eliminating waste. Any other budget-cutting steps would only cripple the standards of instruction and research now existing.

One suggested solution to this problem is application for federal subsidies, but this step should be avoided because sooner or later it would inevitably lead to unwholesome controls. The only other solution lies in soliciting voluntary contributions. This is being done through the National Fund for Medical Education, which attracts money from business and industry, and the American Medical Education Foundation (AMEF), which gets its support from the medical profession. These recently formed organizations have accomplished a great deal but have not yet been able to raise enough money to keep medical education from slipping backward. At the fourth annual meeting of state chairmen of the AMEF held in Chicago in January it was brought out that in view of the great discrepancy between tuition charges and the actual cost of his education every physician should do his utmost to support the medical education of future generations. Some states are incorporating a voluntary gift to the AMEF in the annual dues to the state medical society (in hardship cases there is no obligation to make this contribution). Many physicians are so keenly aware of their debt that they make additional contributions either to the AMEF or to their alma mater. Any contribution to the AMEF may be earmarked for a certain school, but it was brought out forcibly at the meeting that earmarking funds for the construction of new buildings, buying certain types of equipment, or other specific purposes, however worthy, can be a great handicap to a medical school. In many states the Woman's Auxiliary is taking an active part in raising funds for the foundation. The need is urgent; the cause is worthy. It merits all the support we as physicians can give it.

1. Cunningham, R. M., Jr.: The Challenge to Medical Education, Public Affairs Pamphlet no. 214, New York, Public Affairs Committee, Inc.

SCHOOL OUTBREAK OF TUBERCULOSIS

Clinical tuberculosis and positive tuberculin reactions in children of preschool and primary ages have declined sharply over the past two decades. Epidemics of positive reactors and clinical cases in a classroom, once common, are now rare, but such outbreaks can still occur and children are still susceptible to tuberculosis.

A recent diagnosis of active tuberculosis in a 6-year-old girl led to an epidemiological investigation that disclosed three other infected first graders. This all occurred because the attractive young teacher, who appeared to be healthy, had an open case of tuberculosis that for some reason had not been discovered previously. This unfortunate situation shocked a prosperous "junior executive" suburb of a well-known city out of its complacent attitude toward tuberculosis. It restimulated a slumbering interest in the school health program and particularly the health of its teachers. It mobilized citizen parents to an action that previously they had not realized was possible.

This community is now organizing for health protection. Representatives of the local medical society, the health council, the parent-teachers' association, the local tuberculosis association, and the school and health departments are working together to develop means for additional community protection. Recommendations have been made to the board of education that teachers, administrators, bus drivers, custodial workers, and other school personnel have annual chest roentgenograms. Also, an education program for parents is suggesting tuberculin testing each year for children under 15 and yearly x-ray of those over 15. The committee also recommends that all adults in the home—parents, baby sitters, and household workers—have annual roent-

genograms like school employees, since they too may have tuberculosis and needlessly expose children without knowing it.

In spite of extensive health education, it was found that this community had a profound lack of information about tuberculosis, about its easy spread from adults to children, and about the thousands who have tuberculosis and do not know it. Few knew that tuberculosis in a child makes him more liable to a more destructive form of the infection in later life. Yet tuberculosis is only one of the many problems of child health in which physicians and medical societies can be most productive when they work in close cooperation with the schools, health departments, parent groups, and voluntary agencies concerned with the health protection of children.

The national conferences on physicians and schools, the fifth of which will be held next October, have been encouraging this kind of interprofessional and interagency cooperation. These conferences, sponsored by the American Medical Association under the direction of the Bureau of Health Education, have led to similar conferences at the state and local levels. Medical society participation in appropriate local and state committees, conferences, meetings, and other activities to develop interrelationships between medicine and education for the formulation of sound school health policies has been recommended by the Board of Trustees and the House of Delegates of the American Medical Association.

When physicians, educators, public health personnel, and parents understand each other's responsibility for child health and are willing to work with each other, such tragedies as contracting tuberculosis in the classroom can be prevented. Teamwork also will permit the promotion of good health among children now in school.

SECOND REQUEST TO RETURN DIRECTORY INFORMATION CARD

The Directory Department of the A. M. A. recently mailed to all physicians in the United States, its dependencies, and Canada an information card, to be filled out and returned so that their data could be correctly listed in the new, 19th edition of the American Medical Directory. To date, of 240,000 cards mailed, only about 85,000 have been returned. A second mailing is now being made to every physician who did not return the first card. Please be on the lookout for this card and fill it out and return it at once. It is hoped that every physician, even those who are retired or not in practice, will return the card regardless of whether there has been any change in his address or type of practice, to insure correct listing in the new directory.

Many county and state societies have cooperated by publishing notices urging members to return the Directory card. It is earnestly requested that notices be posted on bulletin boards in hospitals, medical libraries, and society headquarters and announcements made at meetings, urging members to fill out the cards and mail them promptly to the Directory Department while there is still time to make corrections.

CONTROL OF BACTERIA IN CHICKEN SALAD

Micrococcic (staphylococcic) food poisoning is caused by a toxin formed in food before ingestion. In the United States it is probably the most common of all food poisonings. Since micrococcic food poisoning is not a reportable disease, the precise number of cases occurring annually is unknown, although it is reasonable to assume that at least several hundred food poisoning outbreaks take place yearly. Many outbreaks are reported following banquets, encampments, church suppers, and other occasions where food is prepared in large quantities and held without adequate refrigeration for several hours before being served.

While the relation of micrococci to foods implicated in this type of food poisoning has been known for 70 years, micrococcic food poisoning was not generally recognized until 1930. According to Feig,[1] Micrococcus pyogenes var. aureus (Staphylococcus) is the principal causative organism of food poisoning, and the principal sources of food poisoning in proportion to the number of outbreaks are meat, poultry products, bakery products, milk products, puddings, sauces, and vegetables. Various investigators in recent years have described food poisoning outbreaks in institutions that were traced to micrococci in improperly refrigerated chicken salad and diced chicken. Moreover, the boning and dicing or grinding of chicken after cooking and cooling has been found to provide opportunities for contamination by food handlers.[2]

A study by Weiser, Winter, and Lewis[3] was undertaken recently to determine the influence of holding temperature, time, and salad ingredients on the growth of micrococci in chicken salad. They found that M. pyogenes var. aureus grows readily in diced chicken held at temperatures ranging between 70 and 80 F. In this investigation chicken salad was prepared to have a pH between 5.5 and 5.7 by the addition of acetic acid (vinegar), an acidity that retards the growth of micrococci. The chicken salad, consequently, could be held at a kitchen temperature of 80 F for as long as 12 hours without producing a pronounced growth of micrococci. About 24 hours was required for 30-lb. cans of chicken salad to cool below the danger zone of 48 F when moved from a kitchen having a temperature of 79 F to a refrigerator having a temperature of 47 F. About three hours was required for chicken salad placed in shallow pans to cool below the danger zone under the same conditions. This study demonstrates that cooked and boned chicken should be refrigerated immediately in shallow pans at a temperature no higher than 45 F, and, as soon as it is used in chicken salad, the salad should be refrigerated in a similar manner until served. From the foregoing, it is clear that the best control of micrococcic food poisoning at the present time consists in adequate refrigeration of perishable foods, plus being certain that the food has been originally prepared free from contamination.

1. Feig, M.: Diarrhea, Dysentery, Food Poisoning, and Gastroenteritis, Am. J. Pub. Health **40**: 1372, 1944.

2. Getting, V. A.; Rubenstein, A. D., and Foley, C. E.: Staphylococci and Staphylococcus Carriers, Am. J. Pub. Health **34**: 833, 1944.

3. Weiser, H. H.; Winter, A. R., and Lewis, M. N.: The Control of Bacteria in Chicken Salad: I. Micrococcus Pyogenes Var. Aureus, Food Research **19**: 465, 1954.

ORGANIZATION SECTION

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Setting a new attendance record, the 51st Annual Congress on Medical Education and Licensure, held Feb. 5-8 at the Palmer House in Chicago, attracted a total registration of 684 medical educators, practicing physicians, and representatives of state licensing boards, specialty boards, and medical societies. The four-day session was sponsored by the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Boards of the United States, and the Advisory Board for Medical Specialties. Major topics of discussion were a program for evaluating the graduates of foreign medical schools, a uniform state medical practice act, the role of television in postgraduate medical education, legal medicine in undergraduate medical education, and the future of the internship.

Foreign-Trained Physicians.—The Federation of State Medical Boards at its final business session approved in principle a program submitted by the Cooperating Committee on Graduates of Foreign Medical Schools, representing the federation, the A. M. A. Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the American Hospital Association. Purpose of the program is to assure that foreign-trained physicians practicing in this country have education and training comparable to that received by graduates of American schools. Under the plan, a central administrative unit would be set up to administer the program, study the results, and make a continuous collection of information regarding medical education abroad. Foreign-trained physicians seeking licensure could apply and submit their credentials either directly to the central administrative unit or to a state examining board, which would refer the material to the central administrative unit. The foreign-trained graduate's credentials would have to show satisfactory evidence of at least 18 years of total formal education, including a minimum of 32 months in medicine exclusive of any time devoted to what in this country would be considered premedical study or internship. The applicant then would take a preliminary examination in the basic medical sciences and the major clinical sciences, which would serve as a screening device to eliminate candidates deficient in their medical education and their command of the English language. The first three phases of the program—application, evaluation of medical credentials, and preliminary examination—would have to be completed successfully before a foreign-trained physician could be eligible for any internship or residency appointment. The fourth phase calls for a comprehensive examination designed to cover intensively all of the major areas of medicine. The fifth and final phase would be certification of the applicant to the state examining boards for their consideration.

The Cooperating Committee, headed by Dr. Donald G. Anderson, dean of the University of Rochester School of Medicine and Dentistry and former Secretary of the A. M. A. Council on Medical Education and Hospitals, emphasized the following two basic principles in its report:

> Principle No. 1. Before assuming direct responsibility for the definitive care of patients, including diagnosis and treatment, all graduates of foreign medical schools (immigrants, exchange students and American graduates of foreign medical schools) must give evidence, as nearly as can be measured, of having attained the same level of professional competence as have graduates of American schools.
>
> Principle No. 2. The primary objective of this committee is to devise an effective mechanism for measuring professional competence in the absence of intimate and continuing knowledge of the educational background of foreign physicians. This mechanism should not serve as a substitute for, or interfere with, the normal licensure procedures of the various state boards. It is not the intent that this mechanism should interfere with the mutually beneficial communication that results from the visits to this country of recognized teachers, scholars and investigators; nor is it the intent that this mechanism interfere with those foreign medical school graduates participating in programs of medical and related studies in recognized universities, medical schools and postgraduate schools as temporary students, who by the very nature of their study are not involved in responsibility for patient care.

Medical Practice Act.—The federation also approved in principle a draft of a uniform medical practice act prepared by a study committee of which Dr. Bruce Underwood, secretary of the Kentucky State Board of Health, was chairman. The committee report, which confined itself to general principles rather than legal forms and language, contained recommendations for a definition of the practice of medicine, standards of eligibility for licensure, examinations, reciprocity and endorsement, grounds for probation, suspension or revocation of licenses, and forms for reciprocity and endorsement procedures. The approved draft is intended as a guide only and is not obligatory on any state. The federation also voted to continue the work of the study committee.

Television in Postgraduate Medical Education.—The entire opening day program of the congress was devoted to a symposium in which 25 speakers discussed the potentialities of television in postgraduate medical education and the practical methods and techniques of employing television. Delivering the keynote address, Dr. John W. Cline of San Francisco, A. M. A. past-president and a member of the Council on Medical Education and Hospitals, said that "television can be used to teach physicians with a minimum loss of time away from practice and so deserves the serious consideration of medical educators." Dr. Douglas D. Vollan, Assistant Secretary of the Council, who presided over the symposium, reported that "television in the field of medicine has been developing by leaps and bounds during the past year, but is in need of much careful study if it is to become a sound educational medium." Dr. David S. Ruhe of the University of Kansas Medical Center described television as a "powerful extension of the teacher's arm" and said it will give him larger audiences than are possible in surgery, the laboratory, and clinical demonstrations. Garnet P. Garrison, director of television at the University of Michigan, declared that television, "with its atom-like, explosive potentials for influencing attitudes and stimulating drives to learn," has provided educators with a radical change from the accepted patterns of teaching. Dr. Arthur I. Holleb of New York reported a total of 30,000 physician visits to the series of 30 closed-circuit "Telecolor Clinics" produced during 1953 and 1954 by the American Cancer Society.

Reporting on two series of four clinics telecast from Salt Lake City on an open circuit in the early morning hours before the regular television shows went on the air, Dr. Robert S. Warner of New York said that 74% of the physician audience felt they had gained some new medical facts by watching. Dr. Frank Warren of the New York University Postgraduate Medical School explained that the scrambled-image method of televising "allows physicians to set up the equivalent of a national medical telecasting network, interconnecting hospitals, schools and clinics with individual doctors from coast to coast." The program was given added realism by on-the-spot demonstrations of the use of remote control television cameras, microscopic attachments, kinescopes, and various methods of reception. Several companies supplied equipment and technicians, including General Precision Laboratories, General Electric Company, RCA Laboratories, and Zenith Radio Corporation.

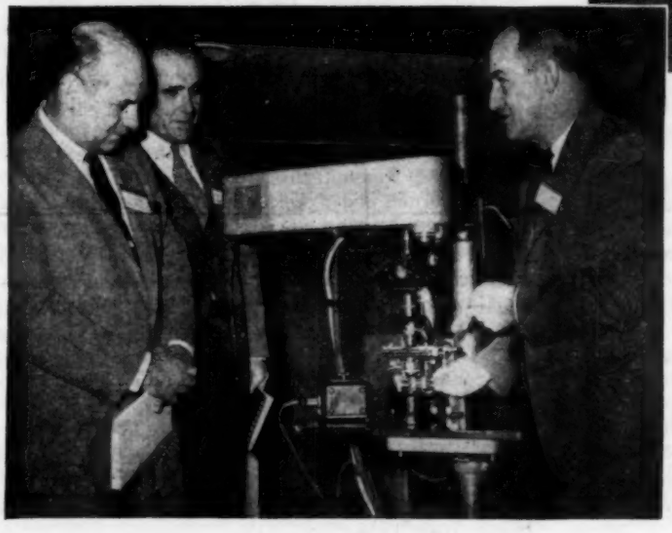
Dr. H. G. Weiskotten, Chairman of the Council on Medical Education and Hospitals, told the congress that, even though the nation's 80 medical schools graduated a record class of more than 6,800 physicians last year, there is "a need for an increase in the opportunities for medical education in this country." He also declared that "the quality of medical care rendered to the American public is dependent upon the standards of medical education maintained by our medical schools and the adoption of these standards by the licensing authorities of the individual states."

Left, Dr. Edward L. Turner, Secretary, A. M. A. Council on Medical Education and Hospitals, discusses the program for the annual Congress on Medical Education and Licensure with Dr. John W. Cline, Los Angeles, a member of the Council and a past-president of the A. M. A., and Dr. Willard A. Wright, Williston, N. D., member of the Council on Rural Health and of the North Dakota State Board. Dr. Cline gave the keynote address at the opening session of the congress.

Above, Dr. H. G. Weiskotten, Skaneateles, N. Y., Chairman, Council on Medical Education and Hospitals, with Drs. Lester Evans, New York, member of the committee of the Commonwealth Fund, and Stanley E. Darst, of the University of Cincinnati Medical College. Dr. Weiskotten presided over at the session on legal medicine in undergraduate medical education and also presented the chairman's address.

Left, Drs. W. B. Hildebrand, Menasha, Wis., and Harvey B. Stone, Baltimore, chat with Dr. Ulrich R. Bryner, Salt Lake City, before symposium on the future of the internship. Dr. Stone, a member of the A. M. A. Council on Medical Education and Hospitals, presided at the meeting, and Dr. Hildebrand, president, American Academy of General Practice, was a participant in the symposium.

Below, color microscopic television camera is shown by Ralph Yeandle, Syracuse, N. Y., to Ralph Creer, Chicago, Secretary, A. M. A. Committee on Medical Motion Pictures, and William J. McDonell, Chicago, regional manager of the Federal Communications Commission. The camera was demonstrated at the conference on the potential use of television in postgraduate medical education.



Above, Dr. Douglas D. Vollan, Assistant Secretary, Council on Medical Education and Hospitals, addressing the conference on potential use of television in postgraduate medical education, which was attended by more than 350 medical educators. Seated at the table are the following participants in a symposium on television in postgraduate medical education: Major Paul Shafer, Washington, D. C., chairman, television committee, Walter Reed Army Medical Center; Dr. Frank Warren, New York, audiovisual coordinator, New York University Postgraduate Medical School; Dr. David S. Ruhe, Lawrence, Kan., director, department of audiovisual education, University of Kansas Medical Center; Dr. Robert S. Warner, New York, assistant medical director, American Heart Association; Dr. Arthur L. Holleb, New York, formerly medical producer-director of color television for the American Cancer Society; Lewis Lang and Fred Roll, both of Philadelphia and Smith, Kline & French Laboratories; Ralph P. Creer, Secretary, A. M. A. Committee on Medical Motion Pictures, and Garnet P. Garrison, Ann Arbor, Mich., director of television, University of Michigan.

Legal Medicine.—Six participants in a panel on legal medicine urged that medical schools give their students sufficient training to make them aware of the many medicolegal problems that can occur in modern practice and to help them prevent unnecessary legal situations. Dr. Alan R. Moritz of Western Reserve University School of Medicine stressed his contention that "medicine serves justice less effectively in the United States than it does elsewhere in the world." Dr. Louis J. Regan of the College of Medical Evangelists and the University of Southern California School of Medicine said that "today the likelihood of the practitioner being sued for malpractice is so great that it constitutes a definite occupational hazard." George E. Hall, staff associate in the A. M. A. Law Department, urged medical schools to follow the example of law schools, which "are doing their best to teach lawyers how to utilize to their advantage everything that medicine, and science in general, has to offer them." Edwin J. Holman, also a staff associate in the A. M. A. Law Department, declared that "no physician should be expected to learn legal principles the hard way—by being sued for malpractice, assault or slander—when means are available to prevent the occurrence of such unfortunate and unnecessary situations." Dr. Samuel A. Levinson of the University of Illinois College of Medicine said that "if we as physicians and citizens are interested in public safety and criminal justice, we must instruct our medical students in legal medicine, so that they may serve society." Prof. Fred E. Inbau of the Northwestern University Law School pointed out that it is not necessary to give students all the details on legal medicine, but there is a great need for teaching them general principles and preventive measures.

Education Programs.—Dr. Harold Jeghers of Georgetown University Medical Center described a teaching program being conducted by his medical school in cooperation with Mercy Hospital in Buffalo, N. Y., and St. Mary's Hospital in Rochester, N. Y. Purpose of the program, he said, is to make a nonuniversity hospital a center of graduate and postgraduate medical education by creating an atmosphere where teaching is by precept and example on a day-by-day basis. Dr. Franklin D. Murphy, chancellor of the University of Kansas, presided over a symposium in which six speakers discussed the question of whether or not the internship should be eliminated as a phase of modern medical education. Majority opinion in both the panel and the audience seemed to favor retention and improvement of the internship. Delivering the address at the federation dinner, Dr. Anderson declared that "the greatest threat to high standards of medical care in the United States today lies not in the possibility that there will be any significant number of inadequate or incompetent graduates from our medical schools but in the continuing flow of graduates from irregular and sectarian schools of the healing arts who are legally licensed to practice medicine in all or many of its branches." Dr. Elmer W. Schnoor of Grand Rapids, Mich., in his presidential address before the federation, said the objective of medical education today is to turn out future doctors dedicated not only to the best interests of the individual patient but also with an intimate interest in the community and an appreciation of society as a whole.

Dr. A. C. Furstenberg, dean of the University of Michigan Medical School, urged a factual, unemotional approach to the problem of evaluating foreign medical graduates, and he said they should be given the same charitable, individual treatment as that received by graduates of American schools. Reporting on a three-year pilot program at New York University Postgraduate Medical School, Dean Robert Boggs said it would be possible to utilize large numbers of immigrant physicians, both in practice and in the armed forces, if American medical schools would provide them with supplementary education.

The federation at its closing session adopted a resolution declaring that "the Federation of State Medical Boards insists on the present standards of educational competence and condemns the policy of appointing interns to hospital positions who are not graduates of accredited medical schools." The federation also installed Dr. M. H. Crabb of Fort Worth, Texas, as new president and named Dr. J. J. Combs of Raleigh, N. C., as president-elect.

DIGEST OF MINUTES OF MEETING OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

1. *Provisional Approval of Newly Developing Schools of Medicine.*

At its December meeting in Miami, the Council on Medical Education and Hospitals voted to grant provisional approval to newly developing medical schools at the completion of two years of organization and operation if conditions upon evaluation warrant such recognition. It was believed that this action would be of material assistance to developing medical schools in terms of faculty recruitment, facility development, and curriculum planning. The action was taken after earlier discussion by the Liaison Committee on Medical Education representing this Council and the Executive Council of the Association of American Medical Colleges.

2. *Provisional Approval of Graduate Medical Education Programs Withheld.*

During the same meeting, the Council on Medical Education and Hospitals considered a recommendation from the Liaison Committee on Medical Education to the effect that some form of provisional or temporary approval be granted to graduate educational programs (internships and residencies) in hospitals connected with newly developing medical schools. However, after careful consideration, the Council voted to refer the matter of provisional approval for graduate programs in hospitals connected with newly developing medical schools back to the Liaison Committee on Medical Education with the recommendation that such action is unrealistic and cannot be approved by the Council on Medical Education and Hospitals. This action was subsequently reported to the Liaison Committee on Medical Education at its meeting Feb. 4, 1955. It was generally understood that, if circumstances were justifiable, such newly developing "bona fide" internship programs in conjunction with a medical school or teaching hospital might be included in the listing of the National Internship Matching Program, providing their status was clearly indicated through the use of asterisks and explanatory footnotes.

3. *Summary of the Report Made to the House of Delegates by the "Ad Hoc" Committee on Internships.*

The Council staff has prepared the following summary of the reports made to the House of Delegates by the "Ad Hoc" Committee on Internships at the June and December, 1954, meetings.

A. *Conclusions*

1. The committee wishes to emphasize the wide scope and large volume of essential work perfromed in the interests of the public, the profession, and hospitals that the Council on Medical Education and Hospitals has accomplished and continues to accomplish. The final opinions and recommendations of the Council, as presented to the House of Delegates, do not inform the House adequately of the preliminary studies, the various alternatives considered, the joint conferences and studies with other groups, nor the ideas and methods that were thoroughly explored only to be discraded. The committee believes that, had some of these matters been fully presented, the members of the House would have been in a much better position to evaluate the Council's activities. The committee approves of the soundness of the work of the Council. It believes that the "Report of the Advisory Committee on Internships" of the Council (1952) is an important and significant contribution to the general subject of intern training and that it is based on sound principles.

2. It is the opinion of the committee that the mechanical plan of matching interns and hospitals, as accomplished by the National Intern Matching Program, is more efficient than any other plan previously used and gives full effect to the freely expressed desires of both hospital and intern with complete objectivity. The committee approves of the Matching Plan. (Adopted by the House, June, 1954.)

3. The committee defines the internship as the fifth year of medical education. It is usually the first year of hospital experience immediately following the successful completion of four years of study in an approved medical college. (Adopted by the House, June, 1954.)

4. The committee believes that a properly organized rotating internship is the one type that will insure the broad clinical experience that is considered desirable for every graduate regardless of his plans for his future professional career.

5. The committee points out that it is inevitable that some hospitals will not be able to secure a sufficient number of interns because of the fact that there are more approved internships than there are interns to fill them. The committee believes that there is opportunity for the large hospitals affiliated with medical schools to share interns with smaller hospitals on an affiliation basis and that there is abundant opportunity for private hospitals that are not affiliated with medical schools to develop outstanding intern training programs. It believes that any arbitrary scheme designed to allocate interns to hospitals would violate the clear right of each intern to indicate his own choice.

6. The committee believes that any fixed formula for determining the number of interns for each hospital is unrealistic and impractical.

7. The committee believes that foreign-trained physicians should be considered for appointment as interns in approved hospitals only when: (*a*) language difficulties will not seriously impair the program; (*b*) the same educational standards are applied to foreign-trained physicians as are applied to graduates of approved American medical schools; and (*c*) the appropriate state licensing board approves.

B. *Recommendations*

1. That such additional personnel and equipment as is needed be made available to the Council in order to carry on its work.

2. That some mechanism be developed for continuing the exchange of ideas between practicing physicians and other groups interested in medical education.

3. That a continuing study be made as to what should be the content of an internship; what constitutes sound clinical experience during the internship year.

4. That, in collaboration with the Association of American Medical Colleges: (*a*) a careful study be made of hospitals associated with medical schools which are members of the Association of American Medical Colleges, with a view toward voluntary reduction of the number of internships offered, if indicated; (*b*) the possibility of discontinuance of intern training programs in Veterans Administration Hospitals be explored; and (*c*) pilot studies be made in hospitals associated with medical schools to secure data concerning the possible elimination of internships in these hospitals.

5. That evaluation of intern training in hospitals be made on an individual basis, taking into consideration all available, pertinent data, and using reasonable flexibility in the application of requirements.

6. That the Council representative, when he visits a hospital, take the opportunity to discuss with the administrative staff, the medical staff, and the governing board matters pertinent to the hospital's training program.

7. That, when there is insufficient house staff coverage, an adequate number of licensed physicians, under the direction and employment of the hospital and its medical staff, be provided under acceptable legal and ethical circumstances to meet this need.

8. That the "one-fourth rule" be adopted: Any internship program that in two successive years does not obtain one-fourth of its stated complement be disapproved for intern training.

COUNCIL ON MEDICAL SERVICE

Following are abstracts of recent actions by the Council on Medical Service as a result of meetings during the Clinical Session in Miami, Fla., November, 1954. In addition, other items of interest to readers of THE JOURNAL are reported in brief.

ADVISORY COMMITTEE APPOINTED

The Council discussed with representatives of the Council on Medical Education and Hospitals, the American Hospital Association, and the Association of American Medical Colleges the feasibility of studying the problems connected with programs for supplementing the incomes of full-time teachers in medical schools through private medical practice. Dr. J. D. McCarthy, Omaha, Council Chairman, appointed the following persons to serve on an advisory committee: Drs. H. B. Mulholland, Charlottesville, Va., Chairman; Ralph A. Johnson, Detroit; Willard A. Wright, Williston, N. D.; Herman G. Weiskotten, Skaneateles, N. Y.; Harvey B. Stone, Baltimore; Robert Moore, Pittsburgh; Dean Smiley, Chicago; Albert Snoke, New Haven, Conn.; and Edwin L. Crosby, Chicago. The advisory committee met in Chicago on Feb. 3 and discussed methods for approaching medical schools and the development of a questionnaire to be used in the study. It is anticipated that the committee will meet again prior to the A. M. A. Annual Meeting in June in Atlantic City, N. J.

PHYSICIANS' PLACEMENT SERVICE

Approval was given (1) to the distribution of posters to all teaching hospitals calling attention to the services offered by the A. M. A. and state society placement services, and (2) to the presentation of an exhibit at Atlantic City. The need for some kind of poster to inform interns and residents of the availability of assistance in finding a location in which to practice has been recognized for some time. Distribution will be made through the state medical associations, and all teaching hospitals will be requested to cooperate to the extent of placing the posters in the doctors' waiting rooms or interns' quarters.

CHANGE IN COMMITTEE NAME

It was voted that the name of the Committee on Extension of Hospitals and Other Facilities be changed to Committee on Medical and Related Facilities. This does not mean any change in the duties of the Committee, which will continue to review problems concerning the relationship between physicians and hospitals, the distribution of physicians, and the development of hospital programs, health centers, diagnostic clinics, and outpatient dispensaries. The Committee will also continue to direct the activities of the Physicians' Placement Service.

COMMITTEE APPOINTMENTS

The following three year appointments and reappointments were made to committees of the Council: Dr. E. Dwight Barnett, New York, to Committee on Medical and Related Facilities; Drs. I. Jay Brightman, Albany, N. Y., and J. L. Lattimore, Topeka, Kan., to Committee on Indigent Care; Drs. Garland Murphy, El Dorado, Ark., and Howard A. Nelson, Greenwood, Miss., to Committee on Maternal and Child Care; Dr. F. J. Holroyd, Princeton, W. Va., to Committee on Medical Care for Industrial Workers; Drs. Richard L. Meiling, Columbus, Ohio, and Harvey Stone, Baltimore, to Committee on Federal Medical Services; Drs. John Conway, Clovis, N. Mex., and Quentin Kintner, Port Angeles, Wash., to Committee on Prepayment Medical and Hospital Service; and Drs. George Klump, Williamsport, Pa., and James Stevenson, Tulsa, Okla., to Committee on Relations with Lay Sponsored Voluntary Health Plans. Dr. J. Lafe Ludwig, Los Angeles, was appointed to fill an unexpired term on the Committee on Federal Medical Services.

NEW COUNCIL MEMBER

Due to the resignation of Dr. Robert B. Homan Jr., El Paso, Texas, from the Council, the Board of Trustees appointed Dr. A. C. Scott Jr., of Temple, Texas, to fill the unexpired term.

HEALTH CENTER CONFERENCE

The Committee on Medical Care for Industrial Workers sponsored a conference on management and union-sponsored health centers in Washington, D. C., Jan. 25. The discussion centered around "Guiding Principles for Evaluating Management and Union Health Centers," which will be presented to the councils on Industrial Health and Medical Service for further review. Following the conference the Committee met and discussed (1) progress being made on the absenteeism study, including a bibliography; (2) publication of a revision of the union health center pamphlet; and (3) publication of the proceedings of the Third Conference on Medical Care in the Bituminous Coal Mining Areas.

INDUSTRIAL HEALTH

On Jan. 26, the councils on Medical Service and Industrial Health cosponsored a panel on "Industrial Medicine and the Economics of Medical Care," as a part of the Annual Congress

on Industrial Health in Washington, D. C. Dr. J. D. McCarthy, Chairman of the Council on Medical Service, presided during a discussion of "Trends in Medical Benefit Coverage" and "Effects of These Trends on Private and Industrial Medical Practice."

INDIGENT CARE MEETING

On the invitation of the Committee on Indigent Care, representatives of the American Hospital Association, American Public Welfare Association, American Public Health Association, and American Dental Association met with the Committee in New York, Jan. 29, to review a draft of suggested principles for "Tax-Supported Health Services for the Needy" and to discuss other problems concerned with medical care for the indigent. These principles will be reviewed by the appropriate committees or councils of each of the respective associations. If general approval is obtained, it will provide the staffs of the various associations with some basic areas of agreement from which concentrated action can be taken to improve programs to provide medical care for the indigent. Following this the Committee met and approved the publication of a compilation of 15 articles on indigent medical care programs that have appeared in THE JOURNAL; these will be available from the Council on Medical Service. The Committee also discussed the publication of a selected bibliography on the aging and further study of the problems involved in providing medical care to migratory workers.

FEDERAL MEDICAL LEGISLATION

Third Installment, First Session, 84th Congress

Cancer Research

Senator Neely (D., W. Va.), in S. 312, proposes "To authorize and request the President to undertake to mobilize at some convenient place in the United States an adequate number of the world's outstanding experts, and coordinate and utilize their services in a supreme endeavor to discover means of curing and preventing cancer." It is identical with H. R. 477, previously reported. This bill was referred to the Committee on Labor and Public Welfare.

Presumption of Service Connection

Muscular Atrophy.—Senator Humphrey (D., Minn.) proposes, in S. 437, to establish a presumption of service connection for "progressive muscular atrophy developing a 10 per centum degree of disability or more within three years, or multiple sclerosis developing a 10 per centum degree of disability or more within two years from the date of separation from active service . . . in the absence of affirmative evidence to the contrary." The present presumption is for one year. This bill was referred to the Committee on Labor and Public Welfare.

Multiple Sclerosis and Psychoses.—Congresswoman Rogers (R., Mass.), in H. R. 709, proposes to amend the veterans regulations "to provide that psychoses or multiple sclerosis developing a 10 per centum or more degree of disability within three years after separation from active service shall be presumed to be service-connected." Congressman Teague (D., Texas), in H. R. 1618, makes a similar proposal except that he uses the term "chronic functional psychoses" instead of psychoses.

Malignant Tumors.—Congresswoman Rogers (R., Mass.) proposes, in H. R. 717, "to amend the veterans regulations to provide that malignant tumors developing a 10 per centum or more degree of disability within two years after separation from active service shall be presumed to be service-connected."

Tropical and Chronic Diseases.—Congresswoman Rogers (R., Mass.) has reintroduced, in H. R. 720, her proposal that a chronic or tropical disease "becoming manifest to a degree of 10 per centum or more within three years from the date of separation from active service . . . shall be considered to have been incurred in or aggravated by service as specified therein notwithstanding there is no record of evidence of such disease during the period of active service." The above bills were referred to the Veterans' Affairs Committee.

Outpatient and Hospital Care for Spanish-American War Veterans

Congresswoman Rogers (R., Mass.) by request has introduced a measure, H. R. 717, that would grant to veterans of the Spanish-American War, Boxer Rebellion, and the Philippine Insurrection outpatient treatment and/or emergency hospital care for any disease or disability on the presumption that any disease or disability was service connected. This bill was referred to the Veterans' Affairs Committee.

Care for Veterans Residing Abroad

Congressman Teague (D., Texas) by request has introduced H. R. 1628, which would extend to veterans permanently abroad the right to hospital and medical treatment for service-connected disabilities and make eligible persons who served as Philippine Scouts. This bill was referred to the Veterans' Affairs Committee.

Medical Care for Retired Military Personnel

Congressman Teague (D., Texas) by request has introduced H. R. 1620, which would "liberalize procedures relating to furnishing medical and hospital care to persons retired from the Armed Forces of the United States." Under the present law, if a veteran is receiving VA disability compensation for service-connected conditions, he automatically is entitled to full medical care and hospitalization from the VA. However, retired military personnel are not allowed to receive the VA compensation while receiving military retirement pay and therefore are not eligible for the medical benefits. This bill would make such retired personnel eligible for VA medical benefits but not for the VA compensation. This bill was referred to the Committee on Veterans' Affairs.

Limitation of Outpatient Dental Care for Veterans

Congressman Frelinghuysen (R., N. J.) is attempting, in H. R. 1793, again to make permanent certain restrictions that are now in effect regarding VA dental care. Treatment for service-connected noncompensable cases would be limited to a "one-time" basis and would have to be requested in a year after discharge. A similar bill passed the House last year but not the Senate. This bill was referred to the Veterans' Affairs Committee.

Education and Training Benefits to Veterans

Congressman Teague (D., Texas), in H. R. 734, would "direct the Secretary of Health, Education, and Welfare to make a full and complete investigation of the effect the education and training benefits furnished veterans under the Servicemen's Readjustment Act of 1944 have had." This would include a report of the number of physicians and others trained under the GI law "and the overall effect of the Act on the manpower resources of the Nation" and the "impact on economic and social life of America." Mr. Teague introduced the same bill last Congress, but it was too late for hearings and action. This bill was referred to the Committee on Veterans' Affairs.

Additional Veterans Hospital Beds

Congresswoman Rogers (R., Mass.) has introduced a measure, H. R. 719, that would authorize the construction of 16,000 additional VA hospital beds eliminated from the budget five years ago. This bill was referred to the Veterans' Affairs Committee.

Social Security

Benefits for the Totally and Permanently Disabled.—Congressman Grant (D., Ala.), by H. R. 518, would "amend the Social Security Act to provide that a fully insured individual who becomes totally and permanently disabled shall be deemed to have reached retirement age," and thus be eligible for retirement benefits. Congressman Rhodes (D., Pa.), in H. R. 700, would amend the Social Security Act to provide disability insurance benefits for the permanently and totally disabled who have not reached the retirement age. Both measures were referred to the Ways and Means Committee.

Prepared by the Washington Office of the American Medical Association.

Social Security Extension.—Congressman Celler (D., N. Y.) has reintroduced his bill, H. R. 751, to "extend and improve the old-age survivors insurance system, to provide permanent and total disability insurance and rehabilitation benefits." This measure is identical with Mr. Celler's H. R. 6041 and Senator Lehman's S. 2260 in the 83rd Congress. These measures would broadly revise the social security system and extend compulsory coverage to many self-employed persons, but not to physicians, and would establish a 26-week cash sickness insurance for persons temporarily disabled. Some of the bill's many suggested changes were included in part in the social security amendments of 1954. This bill was referred to the Ways and Means Committee.

Social Security for All.—Congressman Van Zandt (R., Pa.), in H. R. 852, proposes to substitute for the present social security law a measure that would require individuals or companies to pay 3% of their gross income derived from any or all sources, except in personal incomes there shall be an exemption of $250 per month. From this money put into a fund, matched annually with tax funds, the persons over 60 years of age would receive annuities as would persons between 18 and 60 when disabled for more than six months. Unemployed widows with a child under 18 would also receive incomes from this fund. The bill does not state how the disability would be determined. This measure is identical with three measures in the last Congress; H. R. 2446 by Congressman Angell (R., Ore.), H. R. 2447 by Congressman Secrest (D., Ohio), and H. R. 3105 by Congressman Van Zandt (R., Pa.). This bill was referred to the Ways and Means Committee.

Hospitalization for the Aged.—This measure, H. R. 638, by Congressman Celler (D., N. Y.) would amend the Social Security Act to provide federally paid hospitalization for persons 65 years of age and over who are covered by Old-Age and Survivors Insurance and for their dependents and survivors. There would be a 60 day annual limit on hospitalization. Persons with tuberculosis and mental illness would not be eligible, nor would domiciliary care be provided. The Secretary of the Department of Health, Education, and Welfare would make regulations and could operate the program within any state that failed to cooperate. The states would merely act as the agents of the Secretary, functioning through the state health agency. Private insurance plans could be utilized as fiscal agents in dealing with hospitals. The attending physician would certify need for hospitalization. This bill is identical with measures in the last two Congresses and was first suggested by Federal Security Administrator Oscar Ewing and proposed in the 83rd Congress by Congressman Dingell (D., Mich.) and Congressman Celler (D., N. Y.). This bill was referred to the Ways and Means Committee.

Mentally Ill of Alaska

Delegate Bartlett (D., Alaska), in H. R. 610, proposes to transfer the responsibility for the care and hospitalization of the mentally ill of Alaska from the Department of Interior to HEW. Provision is made for voluntary and involuntary commitment procedures. This bill was referred to the Interior and Insular Affairs Committee.

Rehabilitation

Congressman Celler (D., N. Y.) proposes extensive revision of the Vocational Rehabilitation Act, with extension of the federal rehabilitation benefits and grants for the handicapped. Approval of the Public Health Service would be required for aid to any rehabilitation center constituting a hospital. This is similar to measures in the two preceding Congresses. This bill was referred to the Education and Labor Committee.

Air Pollution

Congressman Ray (R., N. Y.), in H. R. 835, would authorize the appropriation of 5 million dollars "to provide for intensified research into the causes, hazards, and effects of air pollution, and the methods for its prevention and control." The Secretary of the Department of Health, Education, and Welfare would administer the program and could contract with state and local governments, educational institutions, and other nonprofit organizations to make appropriate studies. This measure was referred to the Interstate and Foreign Commerce Committee.

Treaties and Executive Agreements

Congressman Dondero (R., Mich.), in H. J. Res. 33, proposes to amend the Constitution of the United States to prohibit making treaties and executive agreements that contravene "the law of any State, unless it is demonstrably clear that the mutual interests of the several States which will be served by the making of such treaty or executive agreement are substantial and clearly preponderate over the interests of the State the law of which is to be contravened thereby." Executive agreements not authorized by Congress would expire six months after the term of office of the President making the agreement, and all agreements would be either published or, if secrecy is required, submitted to an appropriate congressional committee. Congressman Gross (R., Iowa), in H. J. Res. 41, Congressman McDonough (R., Calif.), in H. J. Res. 60, and Congressman Bow (R., Ohio), in H. J. Res. 103, propose an amendment to the Constitution that would provide:

Section 1. A provision of a treaty or other international agreement which conflicts with this Constitution, or which is not made in pursuance thereof, shall not be the supreme law of the land nor be of any force or effect.

Section 2. A treaty or other international agreement shall become effective as internal law in the United States only through legislation valid in the absence of international agreement.

Section 3. On the question of advising and consenting to the ratification of a treaty, the vote shall be determined by yeas and nays, and the names of the persons voting for and against shall be entered on the Journal of the Senate.

Section 4. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of three-fourths of the several States within seven years from the date of its submission.

The above bills were referred to the Judiciary Committee.

Medical Expense Credit on Tax

Congressman Keating (R., N. Y.), in H. R. 796, proposes for federal income tax purposes to allow credit for subscription charges on payments to prepayment cooperative or other health or medical service plans or for health or medical insurance. The allowance would be against the tax otherwise payable and not considered simply as a deductible expense against gross income. The amount allowable as credit would depend upon the tax payers' adjusted gross income. Ninety per cent of the expenditure would be allowed if the tax payer's income is $2,000 or under and decreasing in steps to 60% if the income is over $10,000. This bill was referred to the Ways and Means Committee.

ATLANTIC CITY MEETING, QUERIES AND MINOR NOTES

A new feature of the Atlantic City Meeting will be "Queries and Minor Notes," a project having the same relation to the meeting that the printed column of that name has to THE JOURNAL. The various sections of the Scientific Assembly will assign men for certain hours each day at a designated place in the Scientific Exhibit where physicians may confer and consult concerning their particular problems. Nearly a hundred specialists in the different fields of medicine will be on duty at various times during the week. It is expected that this will be a very popular addition to the meeting.

MEDICAL MOTION PICTURES

The Committee on Medical Motion Pictures announces that booklet 6 of "Reviews of Medical Motion Pictures" is now ready for distribution. This booklet contains 64 critical reviews of medical and health films that were published in THE JOURNAL during 1954. A copy has been sent to the secretary of each state medical society, and copies are available to county medical societies upon request to the Committee. Other requests will be filled by the order department upon receipt of 25 cents for booklet 6 or $1 for the complete set of six booklets, including all reviews published since 1946.

MEDICAL NEWS

ALABAMA

Society News.—The Birmingham Obstetrical and Gynecological Society will be host at the interim meeting of district 7 of the American Academy of Obstetrics and Gynecology, March 18-19, at the Tutwiler Hotel in Birmingham. Fellows of the academy from Alabama, Arkansas, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee, and Texas will be in attendance.

Personal.—Dr. William J. Donald, Tuscaloosa County health officer, has resigned to become director of county health work for the Alabama State Health Department, succeeding Dr. Douglas L. Cannon, Montgomery, secretary of the Medical Association of the State of Alabama, who was named health officer of Montgomery County after the death of Dr. A. H. Graham. Dr. Donald, whose home is in Tuscaloosa, is president of the Tuscaloosa County Medical Society.

Conference on Premedical and Predental Education.—Alpha Epsilon Delta, the national premedical honor society, will sponsor a regional conference on premedical and predental education at the Dinkler-Tutwiler Hotel, Birmingham, March 18-19, to consider the findings and recommendations of the report, "Preparation for Medical Education in the Liberal Arts College," by the subcommittee on preprofessional education of the Survey of Medical Education. Friday morning will be devoted to a symposium, "Preparation for Medical and Dental Education in the Liberal Arts College," in which Dr. Robert Burson, former associate director, Survey of Medical Education and now vice-president of the Medical College of Alabama, Birmingham, will discuss "Preparation for the Study of Medicine," and Dr. Emanuel Cheraskin, M.D., D.M.D., department of oral medicine, school of dentistry, University of Alabama, Birmingham, will speak on preprofessional dental education. Round-table discussions of the report will be held Friday afternoon and Saturday morning. The summary session Saturday afternoon will be followed by a tour of the Medical College of Alabama.

CALIFORNIA

New Headquarters for County Medical Association.—The new headquarters building of the Los Angeles County Medical Association will hold an open house March 13, 1-5 p. m. On March 16 the building will be officially dedicated at a banquet program that will feature addresses by Dr. Walter B. Martin, Norfolk, Va., A. M. A. President; Dr. Dwight H. Murray, Napa, Chairman of the A. M. A. Board of Trustees; Dr. George F. Lull, Chicago, A. M. A. Secretary-General Manager; and Mayor Norris Poulson, Los Angeles.

Public Health Educators Needed.—The city of Los Angeles will hold an examination on an open competitive basis to fill three vacancies for public health educator (salary range, $440 to $545 a month). The written test will be held on a nationwide basis, but it will be necessary for candidates to come to Los Angeles at their own expense for an interview. The candidate must have completed one year of graduate study in public health education in an accredited school of public health and must have had one year of professional experience in public health education or health journalism at the editor level or an equivalent combination of training and experience. Application and $1 filing fee must be received in Room 5, City Hall, before 5 p. m., March 31. The written test will be held April 16 in Los Angeles and such other places as may be required. Information may be obtained in Room 5, Los Angeles City Hall, or at city hall branches in San Pedro, Van Nuys, West Los Angeles, and Venice.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

CONNECTICUT

Dr. Gold Talks on Congestive Failure.—The Alpha Rho chapter of Phi Delta Epsilon fraternity at the Yale University School of Medicine, New Haven, will hold its seventh annual lectureship in Brady Auditorium March 21 at 8:30 p. m. Dr. Harry Gold, professor of clinical pharmacology at Cornell University Medical College, New York, the guest speaker, will discuss "Management of Congestive Failure." The lecture is open to physicians.

DELAWARE

Society News.—"Surgical Lesions of the Pancreas, Particularly Chronic Relapsing Pancreatitis" will be discussed by Dr. Jonathan E. Rhoads, associate professor of surgery, University of Pennsylvania School of Medicine, Philadelphia, at the meeting of the New Castle County Medical Society, March 15, 3-5 p. m., in Memorial Hospital, Wilmington.

ILLINOIS

Clinics for Crippled Children.—The University of Illinois division of services for crippled children has scheduled the following clinics, to which any private physician may refer or bring any children for whom he may want examination or consultative services:

March 16, Metropolis, Presbyterian Parish House; Evergreen Park, Little Company of Mary Hospital; Jacksonville, Passavant Memorial Hospital.
March 17, Rockford, St. Anthony Hospital; Sparta, Community Consolidated School.
March 18, Evanston, St. Francis Hospital.
March 22, Peoria, Children's Hospital; Effingham (rheumatic fever), St. Anthony's Emergency Hospital.
March 23, Springfield (cerebral palsy), Memorial Hospital; Aurora, Copley Memorial Hospital.
March 24, Bloomington, St. Joseph's Hospital.
March 25, Chicago Heights (rheumatic fever), St. James Hospital.
March 29, Shelbyville, First Methodist Church.

Chicago

New Medical Exhibit.—The Museum of Science and Industry, American Society of Anesthesiologists, and Abbott Laboratories will hold a dedication dinner on the occasion of the official opening of the exhibit "The Conquest of Pain" at the museum, Jackson Park at 57th Street and South Shore Drive, at 7 p. m., March 15.

Cardiac Conferences.—The monthly clinicopathological cardiac conference of Cook County Hospital was held March 11 in the Children's Amphitheater, 700 S. Wood St. The guest speaker, Dr. William B. Wartman, chairman, department of pathology, Northwestern University Medical School, discussed "The Myocardium from the Standpoint of the Clinical Pathologist." The next monthly clinicopathological cardiac conference of Cook County Hospital will be held April 8 from 11 a. m. to 12 noon at an open meeting in the Children's Amphitheater, 700 S. Wood St. "Recent Developments in the Problem of Pulmonary Circulation in Man" will be considered by the guest speaker, Dr. Andre Cournand, cardiopulmonary department, Columbia University College of Physicians and Surgeons, New York.

Summer Camp for Diabetic Children.—A summer camp for diabetic children will be open for the seventh season under the auspices of the Chicago Diabetes Association, Inc., from July 17 to Aug. 7 at Holiday Home, Lake Geneva, Wis. The Chicago Diabetes Association will furnish a staff of resident physicians and dietitians, trained in the care of diabetic children. Boys and girls, aged 8 through 14 years, are eligible. Fees will be set on a sliding scale to meet individual circumstances. Limited capacity requires prompt application. Physicians are requested to notify parents of diabetic children and to supply the names of children who would like to attend camp. Applications may be obtained from, and inquiries should be addressed to, the Chicago Diabetes Association, 5 S. Wabash Ave., Chicago 3 (ANdover 3-1861).

IOWA

Iowa-Nebraska Medical Assembly.—The Pottawattamie County (Iowa) Medical Society will sponsor the annual Iowa-Nebraska Medical Assembly at the Hotel Chieftain, Council Bluffs, March 24, when the following symposium on thyroid disease will be presented after luncheon:

Basic Science Aspects of Thyroid Disease, A. Ross McIntyre, University of Nebraska College of Medicine, Omaha.
Laboratory Aspects of Thyroid Disease, Morton H. Kulesh, University of Nebraska College of Medicine, Omaha.
Medical Management of Thyroid Disease, Elmer C. Bartels, Boston.
Thyroid Disease in Pediatrics, John C. Herweg, Washington University School of Medicine, St. Louis.
Thyroid Disease in Obstetrics and Gynecology, Emil G. Holmstrom, University of Utah School of Medicine, Salt Lake City.
Thyroid Disease and the Surgeon, Claude J. Hunt, Research Hospital, Kansas City, Mo.

Wives are invited to attend the cocktail hour, 5-6:15 p. m., and the dinner that will follow. All speakers will participate in a panel discussion on thyroid disease, 7:30 p. m., moderated by Dr. Howard B. Hunt, chairman, department of radiology, University of Nebraska College of Medicine, Omaha. Registration fee of $10 includes cocktails and dinner. Registration fee for physicians' wives, $5, includes cocktails, dinner, and entertainment. The American Academy of General Practice has allowed five hours' credit for this program.

MASSACHUSETTS

Course on Pulmonary Function.—The American Trudeau Society announces a postgraduate course, "The Measurement of Pulmonary Function in Health and Disease," sponsored by the medical schools of Harvard University, Tufts College, and Boston University, March 21-25. The course is intended for physicians interested in diseases of the chest who wish to acquaint themselves with the methods used in the evaluation of pulmonary function. Methods of analysis of pulmonary function and related cardiac function will be described and demonstrated. Tuition is $50. Information may be obtained from Dr. Edward J. Welch, chairman, Regional Committee on Postgraduate Courses, 1101 Beacon St., Brookline 46.

MICHIGAN

Gudakunst Memorial Lecture.—John F. Enders, Ph.D., of the Children's Medical Center, Boston, will deliver the sixth annual Don W. Gudakunst Memorial Lecture at the school of public health, University of Michigan, at 4 p. m. March 15, when he will present "Remarks on the Present Status of Knowledge Concerning the Poliomyelitis Viruses."

MISSOURI

Anesthesiologists Meet in Kansas City.—The annual meeting of the Missouri Society of Anesthesiologists will be held March 13 at the Muehlebach Hotel, Kansas City. The business meeting, 10:30 a. m., will precede 1 o'clock luncheon, after which the following program will be presented:

Denitrogenation, Rebreathing, and Resistance During Inhalation Anesthesia, William K. Hamilton, Iowa City.
Anesthetic Management of Patients for Intracardiac Surgery, Kenneth K. Keown, Philadelphia.
Modern Aspects of Cardiac Resuscitation, Hugh E. Stephenson Jr., Columbia.

NEW JERSEY

Conference on Heart Disease.—The sixth annual scientific session of the New Jersey Heart Association will be held from 2 to 5 p. m., March 16, in the Auditorium of the Mutual Benefit Life Insurance Company, 300 Broadway, Newark. All physicians in the state are cordially invited to attend. The following program will be presented:

Herman K. Hellerstein, Cleveland, What Can the Cardiac Do?
David E. Zion, Philadelphia, Significance of the 6 Foot Heart Plate.
Robert W. Wilkins, Boston, Treatment of Hypertension.
A. Wilbur Duryee, New York, Office Management of Common Peripheral Vascular Disorders.
Lewis Dexter, Boston, Clinical Diagnosis of Congenital Heart Disease.

Neurology-Psychiatry Course.—An intensive course in psychiatry and neurology will be offered from March 14 to June 24 (4:15-6:45 p. m., Monday, Wednesday, and Friday) at the Essex County Overbrook Hospital at Cedar Grove, under the sponsorship of Rutgers University, New Brunswick. The first part, devoted entirely to neurology, ends April 20. It will include neuroanatomy, neuropathology, neurophysiology, neuroradiology, and clinical neurology. The psychiatry portion covers all major psychoses, the psychoneuroses, all treatment modalities, social work, clinical psychology, psychodynamics, biological aspects of psychiatry, personality development, and psychosomatics. Tuition fee is $100 for the neurology course; $125 for the psychiatry course; or $200 for both. Enrolment forms may be obtained from Extension Division, 77 Hamilton St., New Brunswick. For information communicate with Superintendent, Essex County Overbrook Hospital, Cedar Grove.

NEW YORK

Society News.—At its meeting March 22, 9 p. m., in the Kings County Medical Society Building, the Kings County Surgical Society will have as speaker Dr. Orvar Swenson, Boston Floating Hospital, whose subject will be "The Acute Abdomen in Infants and Children."——At the meeting of the Medical Society of the County of Kings and Academy of Medicine of Brooklyn (March 15, MacNaughton Auditorium), "Office Diagnosis and Treatment of Rectal Bleeding" will be presented by Dr. Raymond J. Jackman, head, section of proctology, Mayo Clinic, Rochester, Minn. The discussant will be Dr. A. W. Martin Marino, clinical professor of surgery, State University of New York College of Medicine at New York City, Brooklyn.

New York City

Tumor Clinic.—Dr. Henry C. Falk, director, gynecology and obstetrics, Beth Israel Hospital, will present "Histogenesis of the Ovarian Tumors" at the tumor clinic conference, Harlem Hospital, March 16, 10:45 a. m.

Course in Surgical Anatomy.—Cornell University Medical College will present a full-time course (five and one-half days a week) in surgical anatomy from May 30 to June 25. The course, especially designed for candidates for the American Board of Surgery, will be in charge of Dr. Ernest W. Lampe. The tuition is $200. The course is limited to 25. Inquiries may be directed to the Office of the Dean, Cornell University Medical College, 1300 York Ave., New York 21.

NORTH CAROLINA

Conference on Rural Health.—The Medical Society of the State of North Carolina has scheduled a conference on rural health at East Carolina Teachers College in Greenville, March 17. The western conference will be held at the George Vanderbilt Hotel in Asheville, March 24.

OHIO

Course on Pathology and Pathological Physiology.—A course on pathology and pathological physiology in internal medicine will be given March 21-26 at the Frank E. Bunts Educational Institute of the Cleveland Clinic Foundation, Euclid Avenue at East 93rd St., Cleveland, under the auspices of the American College of Physicians and the direction of Dr. A. Carlton Ernstene. The fee for ACP members is $30; for nonmembers, $60. The principal objective will be to stress the relation between pathology, pathological physiology, and clinical diagnosis and treatment. The major subjects presented will be in the fields of cardiovascular and renal disease, pulmonary disease, gastroenterology, hematology, endocrinology, and metabolic diseases. The course will include lectures, clinical demonstrations, pathology conferences, and question and answer panels.

OKLAHOMA

Meeting on Ophthalmology and Otolaryngology.—The Oklahoma City Academy of Ophthalmology and Otolaryngology will hold the annual course and meeting March 17 and 18. Drs. Peter C. Kronfeld, Chicago, and Albert C. Stutsman, St. Louis, will be guest speakers. There will be a dinner meeting Friday night. Registration will be limited to ophthalmologists, otolaryngologists, and their guests.

OREGON

Meeting of Portland Surgeons.—The annual meeting of the Portland Surgical Society will be held at the Oregon Medical School, March 25-26. Dr. Robert M. Zollinger, professor of medicine, Ohio State University College of Medicine, Columbus, will discuss pancreatitis at 11 a. m. and at 2 p. m. will serve as moderator for "Carcinoma of the Thyroid," a panel discussion by Portland physicians:

Pathological Aspects, Frank R. Menne.
Endocrinologist's Viewpoint, Carl G. Heller.
Isotopes in Diagnosis and Therapy, Tyra T. Hutchens.
Radiation Therapy, Milton D. Hyman.
Surgical Treatment, Dean B. Seabrook.

At the banquet (informal), Multnomah Hotel, 6:30 p. m., Dr. Zollinger will have as his subject "Observations on the Surgical Treatment of Duodenal Ulcer." Other topics to be discussed on Friday include appendicitis, jaundice, and postgastrectomy obstruction. Dr. William W. Krippaehne, Portland, has been invited to present "Renal Excretory Patterns in Gastric Surgery" with Dr. Clarence G. Peterson, Portland. The topics to be discussed on Saturday include excised metastatic pulmonary malignancies, bronchoscopic cures of pseudobronchiectasis, Meckel's diverticulum, and primary tumors of the duodenum. The sessions will end with presentation of "Splenectomy for Hypersplenism" by Dr. Zollinger. Members of the medical profession are cordially invited.

PENNSYLVANIA

Society News.—"Design for Living" is the theme of the ninth annual conference of the Woman's Auxiliary to the Medical Society of the State of Pennsylvania, which will be held at the Hotel Hershey in Hershey, March 15-16. The guest of honor will be Mrs. Mason G. Lawson, President-Elect, Woman's Auxiliary to the American Medical Association. Mr. Aubrey Gates, Field Director, A. M. A. Council on Rural Health, is scheduled to discuss rural health at 4 p. m., Tuesday. On Wednesday at 10:30 a. m. Dr. Pascal F. Lucchesi, Philadelphia, will be moderator for a panel discussion, "Health Units," which will be followed by a panel discussion on program planning.

Philadelphia

Lecture by Dr. Crothers.—The Temple University chapter of Alpha Omega Alpha will present its annual lectureship March 16 at 4 p. m. in the auditorium of Temple University School of Medicine, 3400 N. Broad St. Dr. Bronson Crothers, emeritus clinical professor of pediatrics, Harvard Medical School, Boston, will discuss "Developmental Difficulties of the Child with a Neurological Handicap."

Pediatric Prize.—The Philadelphia Pediatric Society announces a prize of $100 for the best paper submitted by an intern or a pediatric resident at any hospital in the Philadelphia area on any subject related to pediatrics, of either a clinical or a research nature. Papers should be submitted to the secretary of the society by April 1. The award will be presented at the regular meeting of the society in May.

SOUTH DAKOTA

Association for Retarded Children.—The South Dakota Association for Retarded Children has been organized, and Henry V. Cobb, Ph.D., professor of psychology and philosophy at the University of South Dakota, Vermillion, has been named the first president. Tentative plans for the association include proposed legislation; education, both home and institutional; finance; public education; special projects; and services for members.

TEXAS

Annual Clinical Conference.—The Dallas Southern Clinical Society (413 Medical Arts Bldg., Dallas) will present its 24th annual Spring Clinical Conference March 14-17. Panels have been scheduled on relief of pain, hysterectomy, treatment of common dermatoses in general and pediatric practice, diagnosis and management of acute poliomyelitis, uses and limitations of cortisone and ACTH, congenital cardiovascular lesions, toxemia of pregnancy, treatment of burns, and treatment of hypertension.

GENERAL

Orthopedic Surgeons Honored.—The American, British, and Canadian Orthopedic Association recently awarded Association Exchange Fellowships for study in Europe to Drs. J. Leonard Goldner, Durham, N. C.; Albert B. Ferguson Jr., Pittsburgh; Daniel C. Riordan, New Orleans; Charles F. Gregory, Indianapolis; and Cameron S. Allen, Vancouver, British Columbia, Canada. During the trip, April 20 to June 1, the recipients of the award will visit some 10 orthopedic centers in Great Britain and will attend the French-British Orthopedic meeting in Paris in early May.

Civil Aviation Medical Association.—The Civil Aviation Medical Association, formerly the Airline Medical Examiners Association, will hold its eighth annual meeting at the Hotel Statler, Washington, D. C., March 19-20, under the presidency of Dr. Gerald S. Backenstoe, Emmaus, Pa. The sessions will open at 9 a. m. with the CAA-CAMA forum, "The Problem of the Aging Pilot" (third edition). On Sunday at 10 a. m. there will be an open forum for all medical examiners, with a question and answer period. The afternoon will be devoted to medical presentations of a civilian aviation nature. The annual banquet will be held Saturday evening.

Meeting of Otological Society.—The 88th annual meeting of the American Otological Society will be held March 17-19 at the Hollywood Beach Hotel, Hollywood, Fla. The sessions will open at 2 p. m. Thursday with the presidential address of Dr. D. E. Staunton Wishart, Toronto, Canada. A symposium on blood circulation Friday morning will open with an invited address, "Vascular Phenomena of Living Tissues as Observed Microscopically," by Dr. Eliot R. Clark, Philadelphia, and will close with a summary of the symposium and comments by Dr. Hallowell Davis, St. Louis. All members of the medical profession are invited to attend.

Counselor Training in Rehabilitation.—Alpha Gamma Delta, international women's fraternity, and the National Society for Crippled Children and Adults, Inc., will sponsor jointly a counselor-training program designed to provide information and techniques concerning the placement and vocational adjustment of severely handicapped persons. The eighth such course will be held at the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, from June 20 to July 15. For information contact the Personnel and Training Service of the National Society for Crippled Children and Adults, Inc., 11 S. LaSalle St., Chicago 3.

Meeting on Clinical Hypoxia.—Students who have attended the courses of the Society for the Prevention of Asphyxial Death, Inc., are invited to attend the meeting March 24, 8 p. m., at the New York Academy of Sciences (2 E. 63rd St., New York 21) to celebrate the completion of 100 courses in clinical hypoxia resuscitation through pneumatology. An award consisting of "assembled case records of rescues" will be made to Dr. Paluel J. Flagg who organized and has directed the courses since their inception. Former students who are unable to attend are asked to participate by mailing their case records of rescues. Admission to the meeting will be by card, indicating class number and date, which will be mailed as soon as request is received by the Secretary, SPAD, Inc., 2 E. 63rd St., New York 21.

Meeting of Bronchoesophagological Association.—The 36th annual meeting of the American Broncho-Esophagological Association will convene at the Hollywood Beach Hotel, Hollywood, Fla., on the afternoons of March 15 and 16. Physicians are invited to attend the sessions, which will open Tuesday at 2 p. m. with the address of the president, Dr. Clyde A. Heatly, Rochester, N. Y. The Tuesday session will close with a symposium, "Anesthesia in Bronchoesophagology," for which Dr. Sam E. Roberts, Kansas City, Mo., will serve as moderator, and the collaborators will be Drs. John T. Stage, Jacksonville, Fla.; Paul H. Holinger, Chicago; and Chevalier L. Jackson, Philadelphia. The scientific sessions will close with presentation of "Benign Tumors of the Esophagus," by Dr. Francis E. LeJeune, New Orleans. Speakers by invitation during the sessions include Drs. Franklin C. Massey, Philadelphia; Loy C. Smith, Winston-

Salem, N. C.; John H. Lindberg and Harkishen Singh, Hines, Ill.; Hugh D. Bennett, Houston, Texas; and David T. Smith and Will C. Sealy, Durham, N. C.

Meeting of Aero Medical Association.—The Aero Medical Association will hold its 26th annual meeting at the Hotel Statler, Washington, D. C., March 21-23 under the presidency of Dr. Otis O. Benson Jr., Brigadier General, U. S. A. F. The sessions will open Monday at 9 a. m. with presentation of the first Louis H. Bauer Lecture (Louis H. Bauer and the Rise of Aviation Medicine) by Dr. John H. Fulton, Sterling Professor of the History of Medicine, Yale University School of Medicine, New Haven, Conn. At 11 a. m. "The Changing Complex of Aviation Medicine" will be considered by Dr. T. C. MacDonald, air commodore, Royal Air Force, director of hygiene and research, Air Ministry, London. Monday afternoon will be devoted to a special session on space medicine, which will open with "Demonstration of Cosmic Rays in Human Tissue (Skin)" by Dr. J. Eugster, professor of radiobiology, University of Berne, Switzerland. At 8:40 a. m. Tuesday Dr. Wilbur R. Franks, Banting Institute, University of Toronto, Canada, will present "A Triboluminescent Micro-Accelerometer." The scientific sessions will close Wednesday afternoon with a panel on extreme speed and altitude, "The Sky Unlimited," in which the participants, leading civilian and military test pilots from Great Britain, Canada, and the United States, will discuss the aeromedical aspects of their experiences. The Hon. W. Stuart Symington, U. S. Senator from Missouri and the first Secretary of the Air Force, will be the guest of honor and principal speaker at the banquet Wednesday, 7 p. m.

Neurosurgical Society of America.—The eighth annual meeting of the Neurosurgical Society of America will convene at Del Monte Lodge, Pebble Beach, Calif., March 16-19 under the presidency of Dr. Everett F. Hurteau, Akron, Ohio. At 10:15 a. m. Thursday Drs. Harvey Chenault, Lexington, Ky., and Raymond H. Quade, Neenah, Wis., will moderate a clinical forum, to which members are invited to bring difficult or interesting cases with roentgenograms and other pertinent material. At 3 p. m. Dr. Robert L. Merrick, St. Paul, will serve as moderator for a basic neurosurgical science panel, which will include papers by Dr. Merrick, Drs. Bertram Selverstone and Edgar A. Bering (by invitation), Boston; Dr. Robert B. Livingston (by invitation), New Haven, Conn.; and Dr. Joe R. Brown (by invitation), Rochester, Minn. At 6:30 p. m. there will be cocktails, dinner, and dancing at the Beach Club (informal). By special invitation Dr. Palle Taarnhoj, Cleveland, will discuss "Trigeminal Root Decompression" Friday at 9 a. m. At 10:30 a. m. there will be society discussion on neurosurgical economics. The golf tournament is scheduled for 1:30 p. m.; cocktails, 6:30 p. m.; and banquet (informal), 7:30 p. m. Dr. Carl J. Graf, Buffalo, will be toastmaster, and Dr. Hurteau will deliver the presidential address, "The Complete Neurosurgeon." The sessions will conclude Saturday morning with "Removal of Ependymoma of Cervical Spinal Cord—A Motion Picture Presentation" by Dr. George J. Ehni, Houston, Texas. There will be an informal buffet Saturday night.

Meeting of Otorhinolaryngologists.—The 59th annual meeting of the American Laryngological, Rhinological and Otological Society, Inc., will be held at the Hollywood Beach Hotel, Hollywood, Fla., March 15-17. Presidential remarks by Dr. Kenneth M. Day, Pittsburgh, Tuesday, 9:30 a. m., will be followed by introduction of the guest of honor, Dr. Edmund Prince Fowler, New York. Tuesday at 10:20 a. m. Dr. Hans Selye, director of the University of Montreal (Canada) Institute of Experimental Medicine and Surgery, will speak on stress and disease. By invitation, Wednesday morning Dr. Edgar L. Frazell, New York, will present "Surgical Treatment of Cancer of the Paranasal Sinuses"; Charles M. Pomerat, Ph.D., professor of cytology, University of Texas Medical Branch, Galveston, Texas, will discuss "Recent Observations on Living Human Cells with Cinematographic Technique"; and Dr. Magnus I. Smedal, Boston, will participate with Dr. Frank D. Lathrop, Boston, in presentation of "X-Ray Therapy of Inoperable Cancer of the Head and Neck." At 12:05 a color movie, "Laryngectomy and Neck Dissections," by Dr. Julius W. McCall, Cleveland, will be shown. "Florida Night," a social program, has been scheduled for Tuesday evening under the cosponsorship of the American Bronchoesophagological Association, American Laryngological, Rhinological and Otological Society, Inc., and the Florida Committee. A cocktail party at 6 p. m. will precede the charcoal broiled steak dinner at the pool, which will be followed by an aquacade and dancing. Admission is by ticket, and dress is informal.

International College Appoints Executive Director.—Dr. Ross T. McIntire, vice admiral, U. S. Navy, retired, and former surgeon general of the Navy, has been appointed executive director of the International College of Surgeons, whose headquarters is in Chicago. A native of Oregon, Admiral McIntire was commissioned assistant surgeon in the Navy in 1917 and became chief of the Bureau of Medicine and Surgery with the rank of rear admiral in 1938. He became a vice admiral in February, 1944, two years before his retirement from the Navy. During a long military career he served in two wars, in various Naval hospitals, in the Philippines, and aboard the hospital ship Relief. He did postgraduate work at the University of Pennsylvania, Philadelphia; at Washington University, St. Louis; and at the Naval Medical School, Bethesda, Md.; and also served as instructor in ophthalmology and otolaryngology in Washington, D. C. He was personal physician to President Franklin D. Roosevelt and served as director of the American Red Cross National Blood Bank Program and as chairman of the President's Committee on National Employ the Handicapped Week. He was awarded the Navy's Distinguished Service medal, the World War I Victory medal with Escort Clasp, the American Defense medal with Bronze Star, the American Campaign medal, and the World War II Victory medal, and received various decorations and awards from foreign countries. He has been a member on the National Board of Medical Examiners and of the board of directors of the American Foundation for Tropical Medicine, a trustee of the Georgia Warm Springs Foundation, a member of the Health and Medical Committee of the National Research Council, an honorary fellow of the American Surgical Association, and a member of the board of governors of the American College of Surgeons.

Adm. Ross T. McIntire.

FOREIGN

Seminar Congresses in Ophthalmology.—In its seminar congresses in ophthalmology the American Medical Society of Vienna will present the following programs by the medical faculty of the University of Vienna:

April 5-7, Histology of the Eye; Histopathology of the Eye; Ocular Muscle Anomalies.
May 3-5, Refraction; Ocular Motility; Perimetry.
June 7-9, Plastic Surgery of the Eye; External Diseases of the Eye; Glaucoma.
July 5-7, Slit Lamp Microscopy; Ophthalmology; Ocular Therapeutics.
Aug. 2-4, Electrosurgical Treatment of the Eye; Ocular Cataracts; Retinal Detachment.
Sept. 6-8, Operative Ophthalmology; Gonioscopy; Anomalies.
Oct. 4-6, Neuro-ophthalmology; Diseases of the Retina; Physiology of the Eye.
Nov. 8-10, Ophthalmic Medicine; Diagnostic Examination; Ocular Adnexa (Selected Topics).

Details may be obtained from the American Medical Society of Vienna, I. Vienna, Universitaetsstrasse 11. Cable: "Ammedic" Vienna.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 21-23. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

CIVIL AVIATION MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 19-20. Dr. Seymour Fiske, 150 East 71st St., New York 21, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Whitley Hotel, Montgomery, April 21-23. Dr. Douglas L. Cannon, 537 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Los Angeles, March 28-31. Mr. Mac F. Cahal, 406 West 34th St., Kansas City, Mo., Executive Secretary.

AMERICAN ACADEMY OF NEUROLOGY, Shamrock Hotel, Houston, Tex., April 28-30. Dr. Alexander T. Ross, Indiana University Medical Center, Indianapolis 7, Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Spring Session, Sheraton-Cadillac Hotel, Detroit, April 4-7. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Philadelphia, April 6-8. Dr. N. L. Hoerr, 2109 Adelbert Rd., Cleveland 6, Secretary.

AMERICAN ASSOCIATION FOR HEALTH, PHYSICAL EDUCATION AND RECREATION, Hotel Statler, Boston, April 17-20. Mr. William F. Meredith, Dept. of Physical Education, University of Pennsylvania, Philadelphia 4, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, San Francisco, April 10-16. Dr. F. S. Cheever, University of Pittsburgh School of Public Health, Pittsburgh 13, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, The Shamrock, Houston, Texas, April 7-9. Dr. Edward A. Gall, Cincinnati General Hospital, Cincinnati 29, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 12-14. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN ASSOCIATION FOR THE STUDY OF NEOPLASTIC DISEASES, Lord Baltimore Hotel, Baltimore, April 28-30. Dr. Bruce H. Sisler, P. O. Box 268, Gatlinburg, Tenn., Secretary.

AMERICAN ASSOCIATION FOR THORACIC SURGERY, Chalfonte-Haddon Hall, Atlantic City, N. J., April 24-26. Dr. Paul C. Samson, 3959 Happy Valley Rd., Lafayette, Calif., Secretary.

AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION, Hollywood Beach Hotel, Hollywood, Fla., March 15-16. Dr. F. Johnson Putney, 1719 Rittenhouse Square, Philadelphia 3, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Morrison Hotel, Chicago, April 25-30. Dr. Fred W. Wittich, 401 LaSalle Med. Bldg., Minneapolis 2, Secretary.

AMERICAN COLLEGE OF PHYSICIANS, Benjamin Franklin and Bellevue-Stratford Hotels, Philadelphia, April 25-29. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, Bellevue-Biltmore Hotel, Bel-Air, Fla., April 17-21. Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secretary.

AMERICAN FEDERATION FOR CLINICAL RESEARCH, Haddon Hall, Atlantic City, N. J., May 1. Dr. Lawrence E. Hinkle Jr., 525 East 68th St., New York 21, Secretary.

AMERICAN GERIATRICS SOCIETY, Hotel Roosevelt, New York, April 21-22. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

AMERICAN GOITER ASSOCIATION, Skirvin Hotel, Oklahoma City, April 28-30. Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N. Y., Secretary.

AMERICAN LARYNGOLOGICAL ASSOCIATION, Hollywood Beach Hotel, Hollywood, Fla., March 13-14. Dr. Harry P. Schenck, 326 South 19th St., Philadelphia 3, Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, Hollywood Beach Hotel, Hollywood, Fla., March 15-17. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, N. Y., Secretary.

AMERICAN OTOLOGICAL SOCIETY, Hollywood Beach Hotel, Hollywood, Fla., March 17-18. Dr. John R. Lindsay, 950 East 59th St., Chicago 37, Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, San Francisco, April 11-16. Dr. W. F. Hamilton, Medical College of Georgia, Augusta, Ga., Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Claridge Hotel, Atlantic City, N. J., May 4-5. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, Shoreham Hotel, Washington, D. C., April 21-23. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, San Francisco, April 10-16. Dr. Cyrus C. Erickson, 874 Union Avenue, Memphis 3, Tenn., Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, San Francisco, April 10-16. Dr. Carl C. Pfeiffer, Emory University School of Medicine, Emory University, Ga., Secretary.

AMERICAN SURGICAL ASSOCIATION, The Warwick, Philadelphia, April 27-29. Dr. R. Kennedy Gilchrist, 59 East Madison St., Chicago 3, Secretary.

ARIZONA MEDICAL ASSOCIATION, El Conquistador, Tucson, May 4-7. Dr. Dermont W. Melick, 401 Security Building, Phoenix, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS, Chalfonte-Haddon Hall, Atlantic City, N. J., May 3-4. Dr. W. Barry Wood Jr., 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

CALIFORNIA MEDICAL ASSOCIATION, Palace Hotel, San Francisco, May 1-5. Mr. John Hunton, 450 Sutter St., San Francisco 8, Executive Secretary.

CONFERENCE ON MICROCIRCULATORY PHYSIOLOGY AND PATHOLOGY, Benjamin Franklin Hotel, Philadelphia, April 5. Dr. George P. Fulton, Boston University College of Liberal Arts, 725 Commonwealth Ave., Boston 15, Chairman.

CONNECTICUT STATE MEDICAL SOCIETY, Stratfield Hotel, Bridgeport, April 26-28. Dr. Creighton Barker, 160 St. Ronan St., New Haven, Executive Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 14-17. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN STATES HEALTH EDUCATION CONFERENCE, New York Academy of Medicine, New York, April 21-22. Dr. Iago Galdston, 2 East 103rd St., New York 29, Secretary.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, San Francisco, April 11-15. Dr. M. O. Lee, 2101 Constitution Avenue, Washington, D. C., Secretary.

FLORIDA MEDICAL ASSOCIATION, Vinoy Park Hotel, St. Petersburg, April 3-6. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

GEORGIA, MEDICAL ASSOCIATION OF, Bon Air Hotel, Augusta, May 1-4. Mr. Milton D. Kreuger, 875 West Peachtree St., Atlanta, Executive Secretary.

HAWAII MEDICAL ASSOCIATION, Honolulu, May 5-8. Dr. Samuel L. Yee, 510 South Beretania St., Honolulu 13, Secretary.

INDUSTRIAL MEDICAL ASSOCIATION, Buffalo, N. Y., April 23-29. Dr. Glenn Gardiner, Inland Steel Co., East Chicago, Ind., Secretary.

INTERNATIONAL ACADEMY OF PROCTOLOGY, Plaza Hotel, New York, March 23-26. Dr. Alfred J. Cantor, 43-55 Kissena Blvd., Flushing, N. Y., Secretary.

IOWA STATE MEDICAL SOCIETY, Veterans' Memorial Auditorium, Des Moines, April 24-27. Dr. R. F. Birge, 529 36th St., Des Moines 12, Secretary.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 3-8. Dr. Eugene H. Dibble Jr., John A. Andrew Memorial Hospital, Tuskegee Institute, Alabama, Secretary.

KANSAS MEDICAL SOCIETY, Baker Hotel, Hutchinson, May 1-5. Dr. J. A. Butin, 315 West Fourth St., Topeka, Secretary.

LOUISIANA STATE MEDICAL SOCIETY, Roosevelt Hotel, New Orleans, May 2-4. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

MARYLAND, MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF, Baltimore, April 21-23. Dr. Everett S. Diggs, 1211 Cathedral St., Baltimore, Secretary.

MID-CENTRAL STATES ORTHOPAEDIC SOCIETY, Sheraton Hotel and St. Louis Medical Society Auditorium, St. Louis, April 15-16. Dr. H. O. Anderson, 3244 East Douglas St., Wichita, Kans., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Kansas City, March 27-30. Dr. E. R. Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL GASTROINTESTINAL CANCER CONFERENCE, Hosack Hall, New York Academy of Medicine, New York, April 4-5. Dr. Morris K. Barrett, National Cancer Institute, Bethesda 14, Maryland, Executive Secretary.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, New York, March 16-18. Dr. Franklin M. Foote, 1790 Broadway, New York 19, Executive Director.

NEUROSURGICAL SOCIETY OF AMERICA, Del Monte Lodge, Pebble Beach, Calif., March 16-19. Dr. Lester A. Mount, 700 West 168th St., New York 32, Secretary.

NEW JERSEY, MEDICAL SOCIETY OF, Ambassador Hotel, Atlantic City, April 17-20. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

NEW MEXICO MEDICAL SOCIETY, Hilton Hotel, Albuquerque, May 4-6. Mr. Ralph R. Marshall, 223 First National Bank Bldg., Albuquerque, Executive Secretary.

NORTH CAROLINA, MEDICAL SOCIETY OF THE STATE OF, Hotel Carolina, Pinehurst, May 2-4. Mr. James T. Barnes, 203 Capitol Club Building, Raleigh, Executive Secretary.

NORTH DAKOTA STATE MEDICAL ASSOCIATION, Hotel Prince, Bismarck, April 30-May 3. Dr. E. H. Boerth, Box 1198, Bismarck, Secretary.

NORTH PACIFIC SOCIETY OF NEUROLOGY AND PSYCHIATRY, Empress Hotel, Victoria, B. C., March 25-26. Dr. John W. Evans, 919 Taylor St. Bldg., Room 805, Portland, Ore., Secretary.

OHIO STATE MEDICAL ASSOCIATION, Netherland-Plaza Hotel, Cincinnati, April 19-21. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

POST GRADUATE INSTITUTE OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY, Bellevue-Stratford Hotel, Philadelphia, March 29-April 1. Dr. Leandro M. Tocantino, 301 South 21st St., Philadelphia 3, Director.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

KANSAS, Wichita, March 18. Dr. Walter L. Schafer, 401 North Emporia St., Wichita 2, General Chairman.

RHODE ISLAND MEDICAL SOCIETY, Rhode Island Medical Society Library, Providence, May 4-5. Dr. Thomas Perry Jr., 106 Francis St., Providence 3, Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

IDAHO, Sun Valley, Sun Valley Lodge, April 18-20. Dr. James H. Hawley, 105 North 8th St., Boise, Chairman.

MANITOBA, Winnipeg, The Fort Garry, April 25-26. Dr. Paul H. T. Thorlakson, Winnipeg Clinic, Winnipeg, Manitoba, Chairman.

TENNESSEE, Nashville, Dinkler-Andrew Jackson Hotel and War Memorial Bldg., April 4-6. Dr. James A. Kirtley Jr., 104 Twentieth Ave. North, Nashville, Chairman.

SOUTHEASTERN ALLERGY ASSOCIATION, Orange Court Hotel, Orlando, Fla., March 25-26. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

STUDENT AMERICAN MEDICAL ASSOCIATION, Sherman Hotel, Chicago, May 6-8. Mr. Russell F. Staudacher, 510 N. Dearborn St., Chicago 10, Executive Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, Read House, Chattanooga, April 10-13. Dr. R. H. Kampmeier, 706 Church St., Nashville 3, Secretary.

TEXAS MEDICAL ASSOCIATION, Texas Hotel, Fort Worth, April 24-27. Dr. J. M. Travis Sr., 1801 North Lamar Blvd., Austin, Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Hotel del Bosque, Mexico, D. F., May 6-9. Dr. Sidney B. Clark, 204 U. S. Court, El Paso, Texas, Secretary.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION, Phoenix, Ariz., April 19-22. Mrs. L. Amy Darter, Division of Laboratories, State Dept. of Public Health, Berkeley, Calif., Secretary.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION, Sir Francis Drake Hotel, San Francisco, April 30. Dr. Edward J. Zaik, 740 S. Olive St., Room 320, Los Angeles 14, Secretary.

WISCONSIN, STATE MEDICAL SOCIETY OF, Hotel Schroeder, Milwaukee, May 3-5. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, University of Glasgow, Glasgow, Scotland, April 14-16. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Hon. Secretary.

AUSTRALASIAN MEDICAL CONGRESS, Sydney, N.S.W., Australia, Aug. 20-27. For information write: Federal Council of the B.M.A. in Australia, 135 Macquaire St., Syndey, N.S.W., Australia.

BRITISH MEDICAL ASSOCIATION, Representative Meeting, London, England, June 1-4. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN AND BRITISH MEDICAL ASSOCIATIONS, Joint Meeting, Toronto, Canada, June 20-22. Dr. Arthur D. Kelly, 244 St. George St., Toronto, Canada, General Secretary.

COMMONWEALTH HEALTH AND TUBERCULOSIS CONFERENCE, Royal Festival Hall, London, England, June 21-25. Mr. J. H. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.1, England, Secretary General.

CONGRESS OF INTERNATIONAL ASSOCIATION OF APPLIED PSYCHOLOGY, London, England, July 18-23. Dr. C. B. Frisby, National Institute of Industrial Psychology, 14 Welbeck St., London, W.1, England, President.

CONGRESS OF INTERNATIONAL ASSOCIATION OF PSYCHOTECHNOLOGY, London, England, July 18-23. For information write: Dr. C. B. Frisby, Director, National Institute of Industrial Psychology, 14 Welbeck St., London, W.1, England.

CONGRESS OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Stockholm, Sweden, June 18-19. For information write: Dr. J. M. Lemoine, 187 boulevard St. Germain, Paris 7e, France.

CONGRESS OF INTERNATIONAL DIABETES FEDERATION, Cambridge, England, July 4-8. Mr. James G. L. Jackson, 152 Harley St., London, W.1, England, Executive Secretary General.

CONGRESS OF INTERNATIONAL SOCIETY OF SURGERY, Copenhagen, Denmark, July 23-29. Dr. L. Dejardin, 141 rue Belliard, Brussels, Belgium, General Secretary.

EUROPEAN CONGRESS ON RHEUMATISM, Scheveningen, The Hague, Netherlands, June 13-17. Dr. H. van Swaay, Pieter Bothstraat 12, The Hague, Netherlands, Secretary.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Bournemouth, England, April 26-29. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

HISPANO-PORTUGUESE CONGRESS OF OBSTETRICS AND GYNECOLOGY, Seville, Spain, April 13-16. Dr. M. Recasens, Calle Munoz Olive 7, Seville, Spain, General Secretary.

INTER-AMERICAN CONGRESS OF RADIOLOGY, Shoreham Hotel, Washington, D. C., U. S. A., April 24-29. Dr. Eugene P. Pendergrass, 3400 Spruce St., Philadelphia 4, Pa., U. S. A., Secretary General.

INTERNATIONAL ANATOMICAL CONGRESS, Paris, France, July 25-30. Prof. Gaston Cordier, 45, rue des Saints-Pères, Paris 6e, France, Secretary General.

INTERNATIONAL CONGRESS OF ALLERGOLOGY, Rio de Janeiro, Brazil, S. A., Nov. 6-12. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7e, France, Secretary General.

INTERNATIONAL CONGRESS OF ANGIOLOGY AND HISTOPATHOLOGY, Fribourg, Switzerland, Sept. 2-5. For information write: Dr. Gerson, 4 rue Pasquier, Paris 8e, France.

INTERNATIONAL CONGRESS OF BIOCHEMISTRY, Brussels, Belgium, Aug. 1-6. Prof. C. Liebecq, 17 Place Delcour, Liège, Belgium, Secretary General.

INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY, Lausanne, Switzerland, May 26-31. Professor Hauduroy, 19 rue Cesar Roux, Lausanne, Switzerland, Secretary General.

INTERNATIONAL CONGRESS OF CRIMINOLOGY, London, England, Sept. 11-18. For information write: Dr. Carroll, 28 Weymouth St., London, W.1, England.

INTERNATIONAL CONGRESS OF EUROPEAN SOCIETY OF HAEMATOLOGY, Freiburg i,Br., Germany, Sept. 20-24. Prof. Dr. L. Heilmeyer, Hugstetter Strasse 55, Freiburg i,Br., Germany, Chairman.

INTERNATIONAL CONGRESS OF LIBRARIANSHIP AND DOCUMENTATION, Brussels, Belgium, Sept. 11-18. For information write: Dr. A. C. Breycha-Vauthier, Librarian, United Nations, Geneva, Switzerland.

INTERNATIONAL CONGRESS OF NEUROPATHOLOGY, London, England, Sept. 12-17. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London, W.9, England, Secretary.

INTERNATIONAL CONGRESS OF PLASTIC SURGERY, Stockholm, Sweden, Aug. 1-4, and Uppsala, Sweden, Aug. 5. Dr. Tord Skoog, Uppsala, Sweden, General Secretary.

INTERNATIONAL CONGRESS ON URINARY LITHIASIS, Evian, France, Sept. 2-4. Mr. Rossollin-Grandville, Direction Cachet, Evian (Hte-Savoie), France, Secretary General.

INTERNATIONAL CONGRESS OF UROLOGY, Athens, Greece, April 10-18. Dr. Z. Kaires, 25, rue Voukourestion, Athens, Greece, Secretary General.

INTERNATIONAL HOSPITAL CONGRESS, Lucerne, Switzerland, May 29-June 3. Capt. J. E. Stone, International Hospital Federation, 10 Old Jewry, London, E.C.2, England, Hon. Secretary.

INTERNATIONAL MEDICAL CONGRESS, Verona, Italy, Sept. 1-4. For information write: c/o Offices of the International Verona Fair, Piazza Bra., Verona, Italy.

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS, Stockholm, Sweden, Sept. 15-17. For information write: Prof. Ture Petrén, Karolinska Institutet, Stockholm 60, Sweden.

INTERNATIONAL SURGICAL CONGRESS, Geneva, Switzerland, May 23-26. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary General.

INTERNATIONAL SYMPOSIUM ON CARDIOVASCULAR SURGERY, Henry Ford Hospital, Detroit, Michigan, U. S. A., March 17-19. Dr. Conrad R. Lam, 2799 West Grand Boulevard, Detroit 2, Michigan, U. S. A., Chairman of Program Committee.

INTERNATIONAL SYNDICATE OF GYNECOLOGISTS AND OBSTETRICIANS, Meeting Hall of Medical Societies, Paris, France, June 27-28. Dr. Jacques Courtois, 1, rue Racine, Saint-Germain-en-Laye (S & O), France, Secretary General.

INTERNATIONAL UNION OF GYNECOLOGISTS AND OBSTETRICIANS, Paris, France, June 27-28. For information write: Dr. J. Courtois, 1, rue Racine, Saint-German-en-Laye, France.

IRISH OPHTHALMOLOGICAL SOCIETY, Dublin, Ireland, May 12-14. For information write: Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minnesota, U. S. A.

JAPAN MEDICAL CONGRESS, Kyoto University and Kyoto Prefectural Medical College, Kyoto, Japan, April 1-5. Dr. Mitsuharu Goto, University Hospital, Medical Faculty of Kyoto University, Kyoto, Japan, Secretary General.

LATIN AMERICAN ELECTROENCEPHALOGRAPHICAL CONGRESS, Montevideo, Uruguay, S. A., March 21-24. For information write: Dr. R. Arana-Iniquez, Convencion 1287, Montevideo, Uruguay, S. A.

LATIN AMERICAN NEUROSURGICAL CONGRESS, Montevideo, Uruguay, S. A., March 21-24. For information write: Dr. R. Arana-Iniquez, Convencion 1287, Montevideo, Uruguay, S. A.

MIDDLE EAST MEDICAL ASSEMBLY, Campus of American University of Beirut, Beirut, Lebanon, April 22-24. Dr. John L. Wilson, American University of Beirut, Beirut, Lebanon, Chairman.

NEURORADIOLOGIC SYMPOSIUM, London, England, Sept. 13-17. Dr. R. D. Hoare, National Hospital, Queen Square, London, W.C.1, England, Secretary.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Santiago, Chile, S. A., Jan. 15-22, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

PAN AMERICAN CONGRESS ON RHEUMATIC DISEASES, Rio de Janeiro and Sao Paulo, Brazil, S. A., Aug. 14-20. For information write: Dr. Waldemar Bianchi, 126 Avenida Franklin D. Roosevelt, Rio de Janeiro, Brazil, S. A.

VENEZUELAN CONGRESS OF MEDICAL SCIENCES, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

WORLD CONGRESS OF ANESTHESIOLOGISTS, Scheveningen, Netherlands, Sept. 5-10. For information write: Mr. W. A. Fentener van Vlissingen, Noord-Houdringelaan, 24, Bilthoven, Netherlands.

WORLD FEDERATION FOR MENTAL HEALTH, Istanbul, Turkey, Aug. 21. For information write: Miss E. M. Thornton, 19 Manchester St., London, W.1, England.

WORLD MEDICAL ASSOCIATION, Vienna, Austria, Sept. 20-26. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II in 1955.* April 19-20 (Part II only), June 21-22, Sept. 6-7 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination. New candidates should apply by formal registration; registered candidates should notify the board by letter and forward their fees. Exec. Sec., Dr. John B. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* July 15. Final date for filing applications was Jan. 15. *Oral.* Colorado Springs, March 27-31. New York City, Oct. 23-27. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers, June 30. *Oral.* Washington, D. C., Oct. 14-16. To be eligible, candidates must complete 36 months of training by October 1. Final date for filing application is March 15. Exec. Sec., Miss Janet Newkirk, 129 E. 52nd St., New York 22.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, May 4-5; Washington, D. C., May 6-7; Portland, Ore., Sept. 14-16; Chicago, Nov. 30-Dec. 1. *Subspecialties. Gastroenterology.* Philadelphia, April 22-23. *Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of applications for gastroenterology was Feb. 1, and for cardiovascular disease the closing date is June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Written.* St. Louis, April 28-30. *Oral.* New Haven, November. Final date for filing applications is April 1. Sec., Dr. Leonard T. Furlow, 660 South Kingshighway, St. Louis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II, Oral Examination.* Chicago, May 12-20. Case abstracts of candidates who participated in the Part I Examination must reach the office of the board not later than February 28. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical Examinations.* Philadelphia, May 27-30; Chicago, Oct. 9-14. Final date for filing application for 1955 practical examination was July 1, 1954. *Written.* January, 1956. Final date for filing application is July 1. Sec., Dr. Merrill J. King, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part I.* Various locations, April. Final date for filing applications was Nov. 30, 1954. Sec., Dr. Harold A. Sofield, 122 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Written.* Richmond, Va., March 6-10. *Oral.* Chicago, Oct. 3-7. Final date for filing application is April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PATHOLOGY: *Written and Practical Examination for Pathologic Anatomy and Clinical Pathology.* Houston, April 4-6. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Detroit, April 1-3; New York City, June 10-12; Chicago, Oct. 7-9; and Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: Philadelphia, June 10-12. The final date for filing applications was March 1. Sec., Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago 2.

AMERICAN BOARD OF PLASTIC SURGERY: *Entire Examination.* Washington, D. C., April 30-May 2. Final date for filing case reports was Jan. 1. Corres. Sec., Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PREVENTIVE MEDICINE: *Certification in Public Health.* Berkeley, New York, Boston, Baltimore, Minneapolis, and New Orleans, April 14-15; Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

AMERICAN BOARD OF PROCTOLOGY: *Part I.* Philadelphia, May 7. It is possible that simultaneous examinations may be held in two other cities depending upon the geographic locations of candidates. *Part II.* Philadelphia, Sept. 17. Sec., Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: San Francisco, mid-October; New York City, December. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: Chicago, week of May 22; week of Dec. 4. Final date for filing applications for the spring examination was Dec. 1, 1954. Candidates who will complete the required three years' training by June 30 will be eligible to appear for examination in May, and those candidates who will complete their training by Dec. 31 will be eligible to appear for examination in the fall. Sec., Dr. B. R. Kirklin, 429 First National Bank Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part I.* March 30. *Part II.* Cincinnati, March 14-15; San Francisco, April 18-19; Boston, May 16-17; Philadelphia, June 13-14. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

THE BOARD OF THORACIC SURGERY: *Written.* Feb. 25, 1956. Final date for filing applications was Jan. 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Ave., Detroit 2.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, March 14, 1955

NBC-TV, 9 p. m. EST. "Medic" tells of psychiatric treatment given to a manic depressive in a story entitled "Break Through the Bars."

MAGAZINES

McCall's, March, 1955

"Let's Assume You're Normal," by Iago Galdston, M.D.

In an article prepared under the auspices of the New York Academy of Medicine, Dr. Galdston discusses the problems encountered by "normal" people.

"A Loud Kerchoo"

A general report on the common cold. A section subtitled "the cure" concludes with: "The American Medical Association's advice is: stay in bed."

American Weekly, March 6, 1955

"Call the Teledoctor," by Hugo Gernsback

Basing his prediction on industry's use of television and "hands" manipulated from a distance, the author describes a possible way to care for patients in the future. A sick person has a gadget at his bedside that he plugs into a telephone jack. His doctor, notified by phone, views the patient via television and treats him by using remote control hands attached to the television set.

"How to Live 365 Days a Year," by John A. Schindler, M.D.

A condensation from the author's book of the same title, the article reports on "emotionally induced illness."

Town Journal, March, 1955

"Doctors and Hospitals Aren't Enough!" by John Lewis Stage

"America's towns and villages are now enjoying the finest medical care in their history. Yet with this fine progress there has been a lag in . . . the care and transportation of the sick and injured from the time of an accident until they reach the supervision of professionally trained medical people." The author tells how one town solved this problem with a community-operated ambulance service and suggests that other rural areas do the same.

DEATHS

Selling, Lowell Sinn ⊕ Orlando, Fla.; born in Detroit, March 17, 1902; University and Bellevue Hospital Medical College, New York, 1928; specialist certified by the American Board of Psychiatry and Neurology; certified by the National Board of Medical Examiners; member of the American Psychosomatic Society, Endocrine Society, American Psychiatric Association, Association for Research in Nervous and Mental Diseases, and the American Psychopathological Association, of which he was vice-president; fellow of the American Public Health Association and the American College of Physicians; from 1930 to 1934 served with the Illinois State Department of Public Welfare Division of Criminology; returned to Detroit, where he became assistant director of the psychopathic clinic of Recorder's Court in 1935 and was promoted to director the following year, serving in this capacity until 1945; formerly on the staffs of the Harper and the Wayne County General hospitals, special lecturer in psychology at Wayne University in Detroit and consultant in industrial psychiatry to Chevrolet Motor Company and Packard Motor Car Company; at one time psychiatrist for the State Training School for Boys in St. Charles, Ill., Institute for Juvenile Research in Chicago, and the Joliet (Ill.) Penitentiary; later appointed consultant on mental health for the Florida State Board of Health; psychiatrist consultant at the Orange Memorial Hospital and the Florida Sanitarium and Hospital; author of "Men Against Madness" and "Synopsis of Neuropsychiatry"; died Jan. 18, aged 52, of coronary occlusion.

Seidlin, Samuel Martin ⊕ New York City; born in Russia May 1, 1895; Columbia University College of Physicians and Surgeons, New York, 1923; member of The Endocrine Society, New York Academy of Medicine, American Association for the Advancement of Science, Society of Sigma Xi, the Laurentian Hormone Conference, Society for Nuclear Medicine, and the New York Academy of Science; formerly on the faculties of his alma mater and of the Johns Hopkins University School of Medicine in Baltimore; served an internship at the Johns Hopkins Hospital in Baltimore; attending physician of the medical division, chief of the endocrine clinic, and chief of the Medical Physics Research Laboratory, which he established in 1943, at Montefiore Hospital; consultant endocrinologist at Hillside Hospital in Glen Oak and a staff member at Doctors Hospital; served as consultant to the medical division of Oak Ridge (Tenn.) Institute of Nuclear Studies, operated by the Atomic Energy Commission since 1950; died in the Mount Sinai Hospital Jan. 2, aged 59, of a heart attack.

Kraus, John Erik ⊕ Peoria, Ill.; born in Kolin, Czechoslóvakia, March 12, 1887; Deutsche Universität Medizinishe Fakultät, Prague, Austria, 1911; for three years in the Austrian Army; member of the American Association of Pathologists and Bacteriologists and the College of American Pathologists; specialist certified by the American Board of Pathology; served as professor of pathology at the University of Prague in Austria and as visiting professor of pathology at Columbia University in New York; honorary member of the medical staff at St. Francis Hospital, where he was for many years pathologist and director of laboratories; consultant pathologist at Pekin Public Hospital and Peoria Municipal Tuberculosis Sanitarium; died Jan. 17, aged 67.

Wintsch, Carl Herman, Newark, N. J.; born in Brooklyn Feb. 5, 1871; New York Homeopathic Medical College and Hospital, New York City, 1895; served during World War I; in 1937 awarded an honorary doctor of science from Albright College in Reading, Pa.; on the consulting staff of St. Mary's Hospital in Passaic, Irvington (N. J.) General Hospital, and the Essex County Sanatorium in Verona; affiliated with the Montclair (N. J.) Community Hospital and the Martland Medical Center; founder and chief surgeon of the Bethany Home for the Aged; on the senior staff of Presbyterian Hospital, where he died Dec. 18, aged 83, of acute myocardial failure.

Harris, John Warton ⊕ Madison, Wis.; born in 1891; Johns Hopkins University School of Medicine, Baltimore, 1916; specialist certified by the American Board of Obstetrics and Gynecology; professor of obstetrics and gynecology at the University of Wisconsin Medical School; formerly on the faculty of his alma mater; past vice-president of the Wisconsin Society of Obstetrics and Gynecology; member of the American Gynecological Society and the Central Association of Obstetricians and Gynecologists; on the staff of the State of Wisconsin General Hospital; died Jan. 14, aged 64, of coronary disease.

Deaton, David Grady, Galena Park, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1927; member of the State Medical Association of Texas and the American Academy of General Practice; at one time secretary of the Cameron and Willacy Counties Medical Society; in the Student Army Training Corps during World War I; while in San Benito, served as health officer of Cameron County; in 1945 appointed director of the Harris County Health Unit; founder of the Deaton Hospital; died Oct. 14, aged 56, of cancer.

Fleming, Luther Parker ⊕ Sanger, Calif.; Cooper Medical College, San Francisco, 1904; served as a trustee of the Sanger Union High School and of the Sanger Elementary School District for many years and was a past chairman of both groups; member of the advisory board of the Sanger branch of the Bank of America; one of the founders and vice-president of the Sanger Hospital, where he died Dec. 30, aged 78, of bronchopneumonia.

Foshee, Alexander McGowan ⊕ New York City; Medical College of Alabama, Mobile, 1911; member of the American Society of Anesthesiologists, Inc.; served during World War I; on the staffs of the Tonsil Hospital and the Beekman-Downtown Hospital; died Jan. 21, aged 64, of acute coronary occlusion.

Furst, Walter Max ⊕ New York City; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1914; died in Hot Springs, Ark., Dec. 6, aged 64, of cerebral hemorrhage.

Gallager, Harry ⊕ Chester, Pa.; Jefferson Medical College of Philadelphia, 1896; an associate member of the American Medical Association; served during World War I; for 35 years chief medical examiner for Ridley township schools; on the emeritus staff of Chester Hospital; died Dec. 14, aged 83, of cerebral thrombosis.

Gnagi, Will B. Jr. ⊕ Monroe, Wis.; Washington University School of Medicine, St. Louis, 1924; fellow of the International College of Surgeons and president of the Wisconsin chapter, and the American College of Surgeons; on the staff of St. Clare Hospital; died Jan. 15, aged 56, of heart disease.

Grant, Alton Levicount Jr. ⊕ Auburn, Maine; Medical School of Maine, Portland, 1916; died in the Central Maine General Hospital, Lewiston, Oct. 9, aged 65, of cholelithiasis and anemia.

Hardman, James Carney ⊕ Miami, Fla.; St. Louis University School of Medicine, 1923; served during World War I; died Nov. 27, aged 60.

Harrison, Lee Dimond ⊕ Flint, Mich.; Detroit College of Medicine, 1910; died Nov. 14, aged 68, of subacute nephritis.

Haugseth, Enoch, Twin Valley, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1902; died Dec. 2, aged 83.

⊕ Indicates Member of the American Medical Association.

Haygood, Virgil M., Augusta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1907; died in the University Hospital Dec. 17, aged 73, of cerebral thrombosis and arteriosclerosis.

Hirsch, Hans ⊕ Cortland, N. Y.; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1922; died in the Cortland County Hospital Jan. 10, aged 56, of coronary thrombosis.

Hummel, Edward Percival ⊕ Sterling, Colo.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; associate member of the American Medical Association; served as vice-president of the Colorado State Medical Society and as president of the Northeast Colorado Medical Society; on the staff of St. Benedict Hospital; died Oct. 19, aged 81, of coronary thrombosis.

Ingall, Morris ⊕ Boston; Harvard Medical School, Boston, 1928; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics and the New England Pediatric Society; on the staffs of the Beth Israel Hospital and New England Medical Center; died Jan. 9, aged 56, of coronary thrombosis.

Jennings, Wesley Orville ⊕ Kalamazoo, Mich.; University of Michigan Medical School, Ann Arbor, 1927; fellow of the American College of Surgeons; on the staffs of the Bronson Methodist and Borgess hospitals; died Nov. 7, aged 53, of cerebral hemorrhage.

Johnson, Albert Percy ⊕ Sigourney, Iowa; Missouri Medical College, St. Louis, 1891; died in Ottumwa (Iowa) Hospital Jan. 14, aged 92, of carcinoma of the rectum.

Johnson, Joseph E. Sr. ⊕ Elberton, Ga.; University of Louisville (Ky.) School of Medicine, 1893; died Nov. 26, aged 92, of cerebral hemorrhage.

Johnson, Richard George, Rockford, Ill.; Rush Medical College, Chicago, 1924; served during World War I; died in the Veterans Administration Hospital, Hines, Dec. 30, aged 58.

Knox, Melvin L., Stanton, Ky.; Kentucky School of Medicine, Louisville, 1901; died in St. Joseph's Hospital, Lexington, Jan. 9, aged 84, of carcinoma of the prostate.

Koneczny, Edmund P., Detroit; Ekaterinoslav Medical Institute, Dnepropetrovsk, Russia, 1904; died in the Grace Hospital Nov. 19, aged 74, of arteriosclerotic heart disease.

Krausz, Emery ⊕ Phillipsburg, N. J.; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1915; for many years on the staff of the Warren Hospital, where he died Jan. 14, aged 62.

Lhamon, Ruskin Marion ⊕ Captain, U. S. Navy, retired, Sarasota, Fla.; Washington University School of Medicine, St. Louis, 1910; fellow of the American College of Surgeons; entered the U. S. Navy May 10, 1915; retired May 1, 1947; died Jan. 24, aged 69, of heart disease.

McIntosh, Gustavus John, Devils Lake, N. D.; McGill University Faculty of Medicine, Montreal, Canada, 1905; served as city and county health officer; on the staffs of the Mercy and General hospitals; died Dec. 15, aged 77, of pneumonia.

Malley, John Albert ⊕ Quincy, Ill.; St. Louis College of Physicians and Surgeons, 1911; served overseas during World War I; died in St. Mary's Hospital Jan. 20, aged 67.

Matheney, James Curtis ⊕ Okmulgee, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1908; formerly practiced in Lindsay, where he was president of the Garvin County Medical Society; on the staff of the Okmulgee City Hospital, where he died Jan. 20, aged 74, of arteriosclerotic heart disease.

Morgan, Edwin Clarence ⊕ Russellville, Ky.; University of Tennessee Medical Department, Nashville, 1905; served during World War I; died Jan. 7, aged 77, of coronary thrombosis.

Mulligan, Charles Steven, Belle Harbor, N. Y.; Medical College of the State of South Carolina, Charleston, 1925; died in Rockaway Beach (N. Y.) Hospital Jan. 10, aged 58.

Neill, Glenn G. ⊕ Salt Lake City; Washington University School of Medicine, St. Louis, 1923; member of the American Academy of General Practice; died Jan. 16, aged 57.

Nichols, Charles Fay ⊕ Philadelphia; Columbia University College of Physicians and Surgeons, New York, 1915; specialist certified by the American Board of Internal Medicine; served during World War I; fellow of the American College of Physicians; for 21 years assistant medical director of the Penn Mutual Life Insurance Company, retiring in January, 1953; medical consultant for the Philadelphia Life Insurance Company; died Jan. 10, aged 67, of dissecting aneurysm of the aorta.

Nielsen, Morris ⊕ Blair, Neb.; Omaha Medical College, 1900; past president of the Nebraska State Medical Association; served as member and president of the board of education and as president of the chamber of commerce; charter member and first president of the Blair Rotary Club; died Jan. 15, aged 79, of acute cardiac failure and bronchiectasis.

Norton, Harry Bradford ⊕ Hannibal, Mo.; Drake University College of Medicine, Des Moines, 1910; on the staffs of the Levering and St. Elizabeth hospitals; died in McMillan Hospital, St. Louis, Dec. 12, aged 69, of coronary occlusion.

O'Donnell, Dennis Michael ⊕ Ortonville, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; served as health officer of Ortonville; on the staff of Ortonville Municipal Hospital; died Dec. 5, aged 69, of carcinoma of the stomach.

Overbey, Bob C. ⊕ Paducah, Ky.; Hospital College of Medicine, Louisville, 1903; served during World War I; on the staffs of Riverside, Western Baptist, and Illinois Central hospitals; died Jan. 14, aged 77, of coronary occlusion.

Patrick, Thomas Alexander ⊕ Fayetteville, Tenn.; University of Maryland School of Medicine, Baltimore, 1909; past president of the Lincoln County Medical Society; died Dec. 17, aged 71.

Pease, Frank David ⊕ Missoula, Mont.; St. Louis College of Physicians and Surgeons, 1892; Jefferson Medical College of Philadelphia, 1893; for many years city and county health officer; served in the Philippine Insurrection and the Spanish-American War; an associate member of the American Medical Association; on the staffs of the Northern Pacific and St. Patrick's hospitals; died Jan. 19, aged 82, of uremia.

Perry, Russell Simpson ⊕ Columbia, Tenn.; University of Nashville Medical Department, 1894; Vanderbilt University School of Medicine, Nashville, 1894; died Jan. 17, aged 83.

Pope, William Hansford ⊕ Sacramento, Calif.; Medico-Chirurgical College of Philadelphia, 1907; past president of the Sacramento County Society for Medical Improvement; served during World War I; for many years on the staff of the Sutter Hospital; died Dec. 6, aged 75, of hypertensive arteriosclerotic heart disease.

Powell, Solomon Elijah, Shreveport, La.; Meharry Medical College, Nashville, Tenn., 1923; also a graduate in pharmacy; died Jan. 10, aged 68, of acute myocardial infarction.

Ramsey, James Wilson ⊕ Jonesboro, Ark.; Rush Medical College, Chicago, 1902; served in France during World War I; died in Memphis, Tenn., Dec. 6, aged 77, of cardiac failure.

Rapp, Rudolf, Jamesport, L. I., N. Y.; Long Island College Hospital, Brooklyn, 1903; formerly medical superintendent of the department of hospitals of New York City; served as superintendent of the Cancer Institute in Welfare Island, New York City, Harlem, and Lincoln hospitals in New York City, and the Greenpoint Hospital in Brooklyn; formerly first medical assistant at the Grafton (N. D.) State School; died Jan. 31, aged 74, of carcinoma of the liver.

Raymond, Herman Lester, St. Petersburg, Fla.; New York Homeopathic Medical College and Hospital, New York, 1892; formerly practiced in Olean, N. Y., where he was consulting physician at the Olean General Hospital; died in the Veterans Administration Center Nov. 30, aged 87, of pulmonary infarction and uremia.

Repplier, Sidney J. ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1904; served during World War I; an associate member of the American Medical Association; medical director of the Curtis Publishing Company for 37 years, retiring in 1948; died in the Norristown (Pa.) State Hospital Dec. 12, aged 73, of a heart attack.

Richie, Arthur James, Toledo, Ohio; Toledo Medical College, 1898; served during World War I; died in St. Luke's Hospital Jan. 16, aged 77, of arteriosclerotic heart disease.

Rosati, Vincent Fortune, Brooklyn, N. Y.; Jefferson Medical College of Philadelphia, 1923; member of the Medical Society of the State of New York; on the staffs of the Madison Park, Brooklyn Doctors, and Shore Road hospitals; died in Caledonian Hospital Jan. 10, aged 55, of embolism.

Scheer, George Edman ⊕ Ann Arbor, Mich.; University of Kansas School of Medicine, Kansas City, Kan., 1933; resigned from the U. S. Public Health Service Reserve Oct. 31, 1952; member of the Kansas Medical Society; died Nov. 10, aged 66, of valvular heart disease.

Shelburne, James Thomas ⊕ Martinsville, Va.; Medical College of Virginia, Richmond, 1915; served overseas during World War I; on the staff of the Martinsville General Hospital; died Dec. 25, aged 65, of coronary thrombosis.

Shirk, Samuel Martin ⊕ Wallingford, Conn.; Hahnemann Medical College and Hospital of Philadelphia, 1891; died in the Masonic Home Jan. 7, aged 86, of arteriosclerotic heart disease.

Sholl, Harry Earle ⊕ Vallejo, Calif.; the Hahnemann Medical College and Hospital, Chicago, 1906; for many years chief medical referee for the New York Life Insurance Company; died in the Franklin Hospital, San Francisco, Dec. 8, aged 71, of carcinoma of the colon.

Sleeman, Blythe Rooks ⊕ Linden, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; served during World War I; died in the Vanderbilt University Hospital, Nashville, Tenn., Dec. 27, aged 70, of coronary occlusion.

Sloan, Malachi Wilson ⊕ Clifton Heights, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1899; died Jan. 10, aged 80, of cerebral hemorrhage.

Smith, Benjamin Franklin ⊕ Houston, Texas; University of Texas School of Medicine, Galveston, 1912; clinical professor of medicine at Baylor University College of Medicine; served during World War I; past president of the Harris County Medical Society and the Texas Club of Internists; on the staffs of the Hermann Hospital and St. Joseph Infirmary; author of "Diabetes" and "Manual of Electrocardiography"; died near Angleton Nov. 17, aged 67, in an automobile accident.

Smith, Leroy James, Sebring, Fla.; Columbia University College of Physicians and Surgeons, New York, 1903; died in Winston-Salem, N. C., Oct. 26, aged 75, of arteriosclerotic heart disease.

Stephens, Oscar Turner, Prestonsburg, Ky.; University of Louisville Medical Department, 1918; served during World War I; for many years member of the board of education; died Jan. 2, aged 62, of coronary occlusion.

Stiles, Henry Thayer ⊕ Mansfield, Ohio; Western Reserve University School of Medicine, Cleveland, 1926; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served during World War II; for many years on the staff of the Mansfield General Hospital; died Dec. 17, aged 55, of coronary thrombosis.

Thomas, Jesse H., Camden, S. C.; Temple University School of Medicine, Philadelphia, 1910; died Dec. 29, aged 72.

Thompson, Emma Jane, Hartford, Conn.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1896; died Dec. 7, aged 91, of arteriosclerotic heart disease, with congestive failure, and fracture of left hip.

Ullrich, Arlie John ⊕ Indianapolis; Indiana University School of Medicine, Indianapolis, 1915; associated with the Veterans Administration; served overseas during World War I; died in St. Vincent's Hospital Jan. 13, aged 64, of acute coronary occlusion.

Van Beber, J. A. Jr. ⊕ Gassville, Ark.; University of Arkansas School of Medicine, Little Rock, 1937; served during World War II; president of the Baxter County Medical Society; died in Amarillo, Texas, Nov. 21, aged 43, of acute heart failure.

Watkins, George Lancaster ⊕ Farmington, Mo.; Washington University School of Medicine, St. Louis, 1912; served during World War I; member of the staff of the Bonne Terre (Mo.) Hospital; in recent years surgery consultant at State Hospital Number 4; died in St. Luke's Hospital, St. Louis, Dec. 25, aged 66, of coronary occlusion.

Webb, Herbert Melville ⊕ Humboldt, Kan.; Lincoln (Neb.) Medical College of Cotner University, 1906; died in the Veterans Administration Hospital, Kansas City, Mo., Dec. 16, aged 77, of Laennec's cirrhosis and arteriosclerotic heart disease.

Westbrook, Robert Johnson ⊕ Ila, Ga.; University of Georgia Medical Department, Augusta, 1904; died Dec. 27, aged 77.

White, Harry Draper ⊕ Rome, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1896; an associate member of the American Medical Association; served as physician for the Oneida County Jail; on the staff of the Rome Hospital and Murphy Memorial Hospital; died Dec. 13, aged 89, of arteriosclerosis.

White, Rooker John ⊕ Keller, Va.; University College of Medicine, Richmond, 1901; since 1915 on the county board of health; served as a member and chairman of the county school board; on the local draft board during World War I; in charge of examining board number 1 in World War II; president of the Eastern Shore of Virginia Fire Insurance Company and director of the Eastern Shore Citizens Bank; died in the Memorial Hospital in Nassawadox Jan. 5, aged 75, of coronary thrombosis.

Wiley, John Davidson ⊕ Milledgeville, Ga.; University of Georgia School of Medicine, Augusta, 1925; for many years clinical director of the Milledgeville State Hospital; died Dec. 24, aged 54, of coronary infarction.

Willeford, Ralph Waldo, Indianapolis; Medical College of Indiana, Indianapolis, 1905; at one time practiced in Washington, Ind., where he was health officer and secretary of the board of health; died in St. Vincent's Hospital Dec. 16, aged 71, of emphysema.

Williams, Oliver Benjamine, Charlotte, N. C.; Meharry Medical College, Nashville, Tenn., 1937; served during World War II; died Dec. 9, aged 45.

Wilson, Robert Ernest, Mount Vernon, Ind.; Miami Medical College, Cincinnati, 1896; also a graduate in pharmacy; died in the Baptist Hospital Dec. 31, aged 87.

Wood, Tillison James ⊕ Huron, S. D.; Rush Medical College, Chicago, 1897; died Dec. 2, aged 85, of heart disease.

Woodard, Julius Harold ⊕ Tucson, Ariz.; Washington University School of Medicine, St. Louis, 1925; on the staffs of the Pima County and St. Mary's hospitals and the Tucson Medical Center; died Dec. 29, aged 54.

Wooldridge, Frederick Vanuxem, Pittsburgh; Boston University School of Medicine, 1903; formerly on the staff of Shadyside Hospital; died Dec. 26, aged 75, of heart disease.

Yochem, John Alfred, Sandusky, Ohio; Ohio State University College of Medicine, Columbus, 1930; served as county coroner; on the staffs of the Good Samaritan and Providence hospitals; died Jan. 1, aged 51, of pulmonary embolism.

FOREIGN LETTERS

BELGIUM

Luxemburg Congress of Military Medicine and Pharmacy.—The 14th International Congress of Military Medicine and Pharmacy was held in the capital of the grand duchy of Luxemburg. Delegates from 37 countries were present. It was agreed that military medicine is a specialty. Since total warfare imposes on civilian physicians a task comparable to that of military physicians, it is important that medical schools give some training in the handling of mass casualties, whether civil or military. The sanitary protection of both the civilian and military population in wartime is also important. Strict coordination must be established in wartime as well as in peacetime between the military health services and the civilian organizations responsible for environmental sanitation. This coordination requires a precise inventory of the resources available in personnel, sanitary material, drugs, hospital installations, and all measures used to protect the public health. These different resources should be distributed equitably between the armed forces and the civil population. This coordination must be controlled by a high authority with power to make decisions. It is hoped that the cooperation planned on the national level may be extended to the international level and that the resources of the richer countries may be shared by those that are poorer in such resources. This collaboration between nations should be established in the spirit of the international conventions of Geneva.

In the discussion of medical service in mountain warfare, "high mountains" were defined as those regions in which advance, occupation of terrain, supplying food to troops, and evacuation could formerly only be accomplished on foot. Although in such regions the use of motorized vehicles or even mules is impossible, parachuting supplies and evacuation by helicopter do much to solve the problem involved. These methods should be applied on a large scale. For the health service to accomplish its task, physicians and the sanitary personnel must become adapted to life at high altitudes. It is also necessary that each mountain fighter know how to give first aid to a wounded comrade or to himself. A modern fighter, before being able to fight at high altitudes, must be used to living in the mountains in all seasons and under all conditions. He must know how to deal with all the problems posed by armaments and equipment, nourishment, the terrain, and moving on skis or in rocky areas, and above all he must be able to resist the cold. The fight against cold consists mainly in the maintenance of animal heat through the use of proper clothing, shelter, and nourishment. No proper treatment can be accomplished at an altitude of more than 3,000 m. The sick and wounded must be transported to the base camp and from there to the advanced health centers. At a 3,000 m. altitude they should be put in a shelter and given first aid. Protection against the cold is fundamental. The first-aid post should be set up at the lower limit of the high mountain region, that is at the base camp, where surgical first aid can be given with some real chance of success. Heating must be available there, and there must be provision for sterilizing instruments and protection against enemy fire and climatic conditions. In high mountains an igloo is an excellent shelter, but for the sick and wounded it can only serve as a temporary refuge from the wind, affording a place where proper nourishment may be given, bandages may be checked, an injection of morphine may be given, and hemorrhage may be controlled. It is necessary to love mountains in order to do battle in them. If the troops live in high mountains they gain an *esprit de corps* and a sense of mutual aid.

In discussing first aid to the wounded it was agreed that therapeutic methods must be standardized. In contrast to operations performed by a single surgeon in peacetime, the patient wounded in warfare and particularly at the front must pass through the hands of various physicians and surgeons, often of various nationalities, through a series of steps in his evacuation. A preestablished therapeutic policy goes far in overcoming language difficulties under such circumstances. Preoperative antishock therapy, by a surgical team, is especially necessary in wartime. The use of antibiotics assures greater success in surgical intervention but does not replace surgery nor allow it to be delayed. Consequently, it is necessary that the rapid methods of evacuation constantly be improved.

The dental section discussed the establishment of a dental diagram that would both facilitate following the state of every man's teeth during his military service and be a means of identification.

The items in these letters are contributed by regular correspondents in the various foreign countries.

ENGLAND

Symposium on Penicillin.—In a foreword to a symposium that is published in the January issue of the *Practitioner*, Sir Alexander Fleming expresses the reassuring view that there is not going to be a general development of resistant organisms that would render penicillin useless. It is still the most effective drug in many infections. As an interesting commentary on the way in which the price of the drug has fallen, he notes that today the manufacturer gets less for the penicillin than the cost of the package in which it is marketed. The publication of this foreword coincided with the retirement of Sir Alexander from the post of principal of the Wright-Fleming Institute of Microbiology at St. Mary's Hospital. He has been succeeded in this post by Prof. Robert Cruickshank, who contributed an article, "Penicillin: The Problem of Resistance," to the symposium.

In the symposium, Dr. R. W. Fairbrother of Manchester states that giving penicillin by mouth has the advantages of convenience and a diminished risk from sensitivity reactions but that the amount of absorption is uncertain, and, in view of this uncertainty, penicillin should not be given by mouth for the initial treatment of any serious infection. Its main use is probably in children, to maintain an effective concentration once this has been attained by parenteral administration. He warns that the convenience of oral administration must not be an excuse for its widespread use in the treatment of trivial infections or for vague prophylactic measures. Indiscriminate dosage with penicillin by any route is potentially dangerous and must be avoided.

In an article on penicillin in venereology, Dr. G. L. M. McElligott, advisor on venereal diseases to the Ministry of Health, states that procaine penicillin in oil with 2% aluminum monostearate (PAM) has so far proved to be the most suitable preparation for the treatment of syphilis in all its stages. Because in early syphilis the treponemas are in most cases killed after continuous exposure to penicillin for from one to two weeks, the practice of combining penicillin with subcurative doses of arsenicals and bismuth is not warranted. At this stage it is difficult to be certain how much treatment is necessary in the late and latent stages of syphilis, but it should not be less than that recommended for early infections.

Dietetic Control of Phenylketonuria.—Promising results from the use of an economically practicable diet low in phenylalanine are reported in three children with phenylketonuria (two idiots and one imbecile) by Woolf and his co-workers from the Hospital for Sick Children, Great Ormond Street, (*Brit. M. J.* 1:57, 1955). In all three children there was a rise in the I. Q. after treatment ranging from 4.5 to 10 months. In one child, aged 2 years 8 months, the I. Q. increased from 20 to 30 in 10 months. Before treatment his general level was that of a child 6 months of age; he was unable to roll over or sit up and had no vocabulary other than "the murmured vocalization" of a very young baby; he was also subject to petit mal attacks. Ten months later he was walking, beginning to talk, and the petit mal attacks had ceased. In another child of the same age, though not so retarded

mentally, the I. Q. rose from 42 to 49 in nine months. Before treatment she was just beginning to walk and spoke only a few babbled phrases. Nine months later she was able to run about more normally, had a small vocabulary, and had developed socially. The third child, aged 5 years and 5 months, had only had treatment for 4.5 months, but her I. Q. rose from 11 to 14. All three children maintained normal physical growth and health on the diet.

It is concluded that the mental deficiency in phenylketonuria is due to intoxication by phenylalanine or one of its metabolites and can be relieved by decreasing the dietary content of phenylalanine. Because treatment should be initiated as early as possible, it is recommended that the urine of every baby or young child in whom there is the slightest suspicion of mental retardation be tested for phenylpyruvic acid. In phenylketonuria idiots, results of the test should be abnormal by the age of 3 weeks at the latest. There are probably 1,600 phenylketonuric patients in the country. Without treatment, most of them will end up in institutions, where the cost per patient per week averages $14. At present prices the daily cost of the diet low in phenylalanine is about $1.04.

Cardiovascular Disorders in Amputees.—For several years, under the aegis of the Ministry of Pensions, an advisory committee has been studying cardiovascular disorders and mortality rates in amputees. This committee reports that in every group of 1,000 amputees alive in 1930 there was a mean annual death rate of 12.6 in the years 1930 to 1950. In every 1,000 persons in the general population of comparable sex and age alive in 1930 there was a corresponding annual death rate of 11.4. In every 1,000 who had suffered wounds not leading to amputation there was a mean annual death rate of 13.15 in the years 1930 to 1950. In every 1,000 of the general population of comparable sex and age alive in 1930 there was a corresponding mean annual death rate of 11.9.

With so small a difference in death rates the distribution among the certified causes of death assumes little importance. Some members of the committee think that within the limitations of the statistical material available there is evidence of some slight excess of cardiovascular disease as compared with the general population, with a consequent deficiency of deaths from other causes. The committee as a whole, however, believes that cardiovascular diseases have not been experienced by significantly greater numbers of limb amputees as compared with those with serious leg wounds without amputation. Some amputees, especially those with a high thigh amputation, necessitating a tilting table; with excessive obesity; or with severe stump pain, find the wearing of a prosthesis an increasing burden as age advances. These may deserve individual reconsideration, though other classes of pensioners will also find their disabilities more burdensome with the passage of time. Regarding neither their death rate nor their morbidity do amputees form a class apart. They have neither a higher death rate nor a higher morbidity from cardiovascular disease than other classes of seriously wounded persons.

Harley Street.—"For more than three-quarters of a century the words 'Harley Street' have symbolized for the layman all that is learned and skilled in British medicine," writes Dr. Leonard Jacobs (*Practitioner*, **174**:88, 1955) in an article summarizing the history of what can probably be described as one of the most famous medical quarters in the world. The distinction of being the first physician in this area falls to a Dr. James Newton, who settled in Cavendish Square in 1720. Another 75 years were to lapse before another physician, the famous Matthew Baillie, lived in the square. It was not, however, until well on in the 19th century that Harley Street attracted the physician of fashion in any large number, and in 1860 there were only 22 living in Harley Street. By 1904 there were 85, and 10 years later there were 185. Up until 1914, the consultants lived as well as consulted in their houses in Harley Street, but, after World War I, changing fashions and the growing number of those seeking consulting rooms caused most of them to move their homes to the suburbs and to divide up the Harley Street houses into multiple offices. In Harley Street alone there were 297 physicians by 1924; the number rose to about 600 in 1934. By 1938 there were 718, with another 400 in neighboring Wimpole Street and Devonshire Place. The number in 1954 was Harley Street, 813; Wimpole Street, 226; Devonshire Place, 122; and 350 in the other streets in the area, making a total of more than 1,500.

Dr. Jacobs concludes that as a medical center greater Harley Street has probably passed its zenith. The growth of the centers of medical learning outside London has led to a better distribution of professional skill; in London a movement away from Harley Street to the private consulting rooms of hospitals has already started; and the patient is learning that the right address is not a substitute for, or necessarily a guarantee of, professional attainment.

Cortisone in Exophthalmos.—Although the results are described as disappointing, cortisone and corticotropin are worthy of further trial in patients with progressive exophthalmos of sudden or recent onset, according to a report published by a panel appointed by the Medical Research Council (*Lancet* **1**:6, 1955). The report is based on the results obtained in 28 patients, of whom 15 had thyrotoxicosis, 12 had normal thyroid status, and one was hypothyroid. Weakness of the extrinsic ocular muscles complicated the exophthalmos in 18 patients. Cortisone, in dose of 100 to 200 mg. daily, was given to 23 patients, and 50 to 100 mg. of corticotropin daily was given to 5. Four patients also were placed on a low-sodium diet (800 mg. daily). Treatment was maintained for two to three weeks. Only three patients (two of whom were taking corticotropin) showed a marked improvement, and five (all of whom received cortisone) showed a moderate response, but this was temporary. In no patient did a permanent reduction in proptosis occur, and later relapse has always taken place. In three patients, exophthalmos slightly increased during treatment. Improvement in chemosis was the most constant response, and improvement occurred in the 15 patients who showed this feature. Thyroid function was depressed in 8 of the 15 patients with hyperthyroidism, and in half of these patients the improvement in thyrotoxicosis was accompanied by improvement in exophthalmos. It is suggested that restriction of sodium may be responsible for clinical improvement, as three of the four patients on a low-sodium diet showed appreciable improvement. If further trials are undertaken, it is recommended that the dosage of cortisone and corticotropin be greatly increased and that serial intravenous corticotropin infusion, perhaps combined with a dietary restriction of sodium, be used.

Paraplegics.—That the percentage of paraplegics unemployable because of their spinal cord lesions will be extremely small, provided society is able to accept them, is the conclusion of Dr. L. Guttman, the director of the National Spinal Injuries Center, Aylesbury, in a survey of 1,000 paraplegics treated at the center (*Proc. Roy Soc. Med.* **47**:1099, 1954). This center, which was started on Feb. 1, 1944, with one patient, as one of the many preparations for D day, now has 150 beds and is the largest center of its kind in the British Commonwealth and Europe. Of the 1,000 cases reviewed, the cause of the paraplegia was injuries in 75%, transverse myelitis in 7%, poliomyelitis in 6%, and miscellaneous in 12%. The site of the spinal nerve lesion was cervical in 124 (complete in 19), 1st to 5th thoracic nerve in 97 (complete in 68), 6th to 12th thoracic nerve in 524 (complete in 366), and cauda equina in 255. The total mortality was 8.3%, but this is reduced to 6.2% if those cases are excluded in which death was due to causes other than the paraplegia. Further analysis of the deaths shows that among the 491 service patients, excluding World War I, the mortality was 10% (7.9% when corrected as above). The comparable figures for the 226 civilian patients were 3.6% and 1.8%. There is a striking contrast between these figures and the comparable mortality rate for World War I of 80%.

The follow-up of these patients is equally impressive: 774 have been discharged from the center, 591 to their own homes—"the ideal type of domestic resettlement of paraplegics"—and 183 live either singly or with their families in permanent settlements. The employment record of these 774 persons is as follows: 22 were too old to work, but 518 of the remaining 752 are employed, 405 at full-time work, including work in factories.

Penal Action for Excessive Prescribing.—Although they constitute only a small minority of the profession, a certain number of general practitioners are undoubtedly indulging in excessive

prescribing under the National Health Service. Local executive councils, who are responsible to the Minister of Health in such matters, are now taking action against some of these physicians. A physician in Lancashire has been fined $1,680 for alleged overprescribing, on the grounds that he was prescribing at the rate of $26,040 a year. In this instance the committee considered that his lavish ordering of the most expensive medicaments might have contributed to the large practice that he built up in a short time. A woman physician's prescribing in Yorkshire was described as "uncontrolled and irresponsible," and the Executive Council recommended that she should refund the cost ($121.52) of prescriptions that she had issued to patients for whose treatment she was not responsible and that $840 should be withheld from her remuneration. The council reported that she had issued the prescriptions without first finding out whether the patients were on her list, and they suspected that this arose from her desire to consolidate her professional position in a district in which she was a comparative newcomer. One patient had received 72.5 lb. (32.9 kg.) of lint and 234 oz. (6.63 kg.) of disinfectant. A physician in Wiltshire is being required to refund $2,506, the cost of 2,800 prescriptions dispensed for patients on his own dispensing list. In addition, the Ministry of Health has asked that a sum of $700 be withheld from his remuneration. In Bedfordshire, the Executive Council has recommended that $336 be withheld from the remuneration of a physician on the grounds of excessive prescribing.

Common Cold Research Unit.—In the fall of 1953, the Common Cold Research Unit discovered that a common cold virus could be cultivated in tissue cultures of embryonic human lung. It was later found that the virus could be kept alive through a series of at least 10 cultures. It was hoped that this technique might make it possible eventually to grow the virus in large quantities in the laboratory and so enable its life cycle to be observed and minutely examined under test tube conditions. During 1954, members of the unit worked with a new strain of common cold virus that has properties thought to differ slightly from strains studied in the past. The new strain, when diluted and administered in nasal drops, gives rise to a high proportion of colds in volunteers. The incubation period appears to be longer than that previously observed at the unit, and, although there is abundant running from the nose, there is little general malaise and the symptoms are short-lived.

Since the unit first opened in 1946, over 4,000 volunteers have taken part in the trials. Comfortable living quarters are provided for the volunteers, who remain in semi-isolation for up to 10 days. This does not preclude them from taking walks and playing games so long as they do not come into close contact with anyone other than their partner. The experimental procedure is to instil a few drops of the virus fluid into the nose on the second or third day after arrival. Most of the colds so induced are mild, and the chances of one developing are roughly 50-50. Trained medical and nursing facilities are available at all times. In addition to their board, volunteers receive their railway fare to the unit and 42 cents a day pocket money.

Foreign Currency for Patients.—Since the war it has been necessary to restrict the use of British currency abroad, and seven years ago the Exchange Control Medical Advisory Committee was set up to deal with applications by patients advised to seek medical treatment overseas. This committee's work has now come to an end, as the government has decided to simplify exchange control. In future the patient's bank will be authorized to grant foreign currency solely on the strength of a physician's recommendation that it is required "on medical grounds." Banks will provide a printed form, but the physician may write his own certificate, provided similar wording is used. When currency is required for the United States or Canada, the patient's physician will be asked to certify that the dollars are required "for medical or surgical treatment which cannot be obtained elsewhere." This general slackening of controls has been generally welcomed, but it is only fair to mention that, even in the period of most stringent financial control, over 75% of applications were granted, and, during most of the committee's existence, more than 85% were granted. Few, if any, sick persons in genuine need of treatment that could not be obtained in the area where sterling is the currency standard have been unable to obtain it.

Flour Treated with Nitrogen Chloride.—In 1950, the government decided that the use of nitrogen chloride (Agene) as a flour improver should be given up. English flour is still being "improved" in this manner, however, and apparently will be until the end of 1955. In reply to a question in the House of Commons the Minister of Agriculture and Food announced recently that the National Association of British and Irish Millers has agreed to request their members to discontinue the use of nitrogen chloride and to guarantee that the equipment for treating flour in this way will be removed from their mills by Dec. 31, 1955. The National Association of Flour Importers has also agreed to request their members to insure that no flour treated with nitrogen chloride will be imported by then. No decision had yet been reached as to what should be substituted for nitrogen chloride, but the methods being considered include chlorine dioxide, potassium bromate, ascorbic acid, and aeration.

Toxemias of Pregnancy.—Because there are so many points of similarity between the toxemias of pregnancy in women and the condition found in ewes, the Nuffield Foundation has made a grant of $68,000 to the University of Oxford to support work at the Nuffield Institute of Medical Research on toxemia of pregnancy in sheep. The basis for this grant is that veterinary workers have found that by overfeeding pregnant ewes, so that they make large gains of weight, and then suddenly and severely restricting their diet, toxemic symptoms, indistinguishable from naturally occurring toxemia of pregnancy, were induced in 17 of 20 ewes, whereas none in a control group subjected only to overfeeding were affected. A preliminary field trial has been carried out, in which, by limiting weight gain during pregnancy in two flocks, the ewe mortality was reduced from 15 to 20% to less than 1%.

Deaths from Poisoning.—In Scotland in 1953 there were 53 deaths from accidental poisonings and 37 from suicidal poisonings, according to official figures that have just been published. Of the accidental poisonings, 35 were due to barbiturates, and aspirin and salicylates were responsible for 3. In the case of suicidal poisonings, barbiturates accounted for 21, saponated cresol solution for 6, cyanides for 3, and aspirin for 2.

Cost of Hospital Patients.—According to the annual hospital costing returns of the Ministry of Health, the average weekly cost of maintaining a patient in nonteaching general hospitals in England and Wales was $44.16 in 1953-1954, compared with $42.67 in 1952-1953. In teaching hospitals the average cost was $70.61 in London and $53.59 in the provinces, compared with $69.80 and $52.33, respectively, the previous year.

Educating the Public in Cancer Detection.—An experiment has been started by the Manchester Committee on Cancer to test propaganda techniques in cancer education of the general public with a view to shortening the period of delay in seeking treatment for the more curable forms. The Manchester Committee on Cancer is an independent voluntary organization not limited to any one hospital. The best method of approaching the general public was worked out. Approaches involving the fear of cancer, which is already a problem, were abandoned. So was the slogan that "cancer is curable" or "early cancer is curable," because all cancers are not curable and to base propaganda on a fundamentally false statement was considered unwise. The view was also held that any spectacular approach with large audiences is doomed to failure. Numerous small meetings, informal talks, repeated items in local newspapers, and short but pithy pamphlets formed the basis of the approach to the general public, the ultimate aim being to saturate the target area with every permissible means of education and to maintain that saturation. In this campaign no appeals for money from the public were made, but speakers and propagandists were paid fees and incidental expenses by the committee. At the outset the experiment was explained to health officers and to local specialists and practitioners, and comment and criticism were invited. A panel of speakers, drawn at first from the staff of the Christie Cancer Hospital in Manchester was created. It was extended to include health officers and their staffs, county divisional medical officers, general practitioners, superintendent health visitors, and specialists. An executive officer for the committee was appointed, a university nonmedical graduate with

a flair for organization of the public relations type. He paid a personal visit to editors of the 12 local newspapers, explaining the scheme, and enlisted their help in publicizing it. Copies of all known pamphlets on cancer education were obtained, others were written, and a small library was created. Many of the local newspapers agreed to take a weekly series of short articles dealing with health problems, with emphasis on the diagnosis of cancer at frequent intervals. At first the committee underestimated the value of the press in medical propaganda, but now the local newspaper editor is consulted and acts as an honorary adviser on publicity methods in his area.

In the two and a half years that the scheme has been running, nearly 400 lectures have been given and over 460 articles have appeared in the lay press. Most of the lectures have been given to small social, political, or religious groups, rather than to large ones. This has avoided audiences overweighted with the morbidly curious and hypochondriacs. Lectures were carefully chosen according to the group. Ideally the lecturer should be able to sense the atmosphere and mood of the meeting. As far as possible lecturers are physicians, but lay persons who can effectively put across the necessary propaganda are also employed. The lecturer must be aware of the beliefs, prejudices, and attitudes of the audience, and new suggestions must link up with basic beliefs. The lectures, which consisted of straightforward talks of not more than 30 minutes, with time for discussion, questions, and answers, were well received by the public and welcomed by physicians. It was also found that a great fund of public good will exists for cancer campaigns. For example, local nursing and ancillary services, local manufacturers, traders, and others were often willing to help. The attitude of local physicians is favorable to this scheme. An opinion poll revealed that it had not caused cancerophobia nor added to the physicians' work. The public, once they have been exposed to well-conducted lectures, are anxious for more.

New Linear Accelerator at Manchester.—A linear accelerator producing 4 million volt roentgen rays and a betatron producing 20 million volt roentgen rays have been made by the Metropolitan-Vickers Electrical Company Ltd. for the Christie Hospital and Holt Radium Institute in Manchester. These machines, with a 300 kv. Metropolitan-Vickers deep therapy set of special design, have been installed in a new building provided by the Medical Research Council and equipped for the study of the biological effects of high energy radiation. The council will also be responsible for the greater cost of the development work with these machines. This is the first clinical adaptation of the betatron, a gift from the manufacturers, to be introduced into Britain, and, as with the 15 mev. linear accelerator just installed at St. Bartholomew's Hospital, much developmental work must be done before it can be used for the treatment of cancer. Some data have been collected from work with betatrons in the United States and Europe, and experience with high energy roentgen rays has been obtained with a synchrotron, but, as Dr. Paterson, the director of the Holt Radium Institute, explained at a press conference, much has to be learned about the action of these rays on normal and malignant cells. It is uncertain as yet whether a 20 million volt machine will in fact prove any better than the less powerful machines used at present for the treatment of cancer, and it is possible that the optimum energy is less than this.

The linear accelerator produces a beam of roentgen rays comparable to those of the gamma-ray beam of the cobalt "bomb," and although the radiations have a greater penetrating power there is likely to be no marked difference in the results of treating cancer with these two types of radiation. The linear accelerator has a higher output than the cobalt bomb, although this is of no practical significance. Although it is hoped that the proportion of cancer cures will be increased as a result of these new machines, this form of treatment is applicable only to certain patients, mostly those with deep growths.

British Medical Students' Association.—On Nov. 14, 1954, the Annual Meeting of the British Medical Students' Association was opened by Lord Horder at the British Medical Association House, London. He thoroughly approved of the association's encouragement of students to travel. Any one medical school, however good and high its prestige, is parochial, Lord Horder said. Sir Cecil Wakeley, president of the Royal College of Surgeons and honorary president of the association, said that it was essential for the student to take part in discussions and meet people of all kinds. Travel and conferences were most valuable. Since we are living in an age of committees, it is essential to learn committee procedure early. The students were advised to publish medical papers while they were still interns. When a selection board interviews applicants for appointments of consultant status there is often little basis to choose between them, but the board, particularly nonmedical members, attaches great importance to publications. They are taken as evidence of interest and ability.

The president said that the association, which represents over 90% of the medical students of Great Britain, has been admitted to the International Federation of Medical Student Associations. The Minister of Health said that both learning and wisdom are needed by a good general practitioner. He welcomes the opportunity given in some medical schools to work alongside general practitioners. He also hopes that if the students go into general practice they will keep in touch with the academic side of medicine and not neglect the chances of research. There are two ways of entering general practice, either as an assistant with a view to becoming a partner or as a trainee assistant. The Minister advised those looking for a place to practice to go north. Far too many physicians want to practice in the South and in or around London.

NORWAY

Prognosis for Measles Encephalitis.—A survey in 1953 of the publications dealing with the prognosis for measles encephalitis, undertaken by Odessky and his co-workers, showed enormous fluctuations. They found that the complete recovery rate for the 590 cases on record was as low as 6% in some materials and as high as 38% in others. The most recent contribution to this subject comes from Dr. Jens Steen of the Ullevaal Hospital in Oslo. Between January, 1936, and April, 1954, 21 patients suffering from measles encephalitis were admitted to the hospital. Steen has now followed up the careers of these patients, only one of whom was treated so recently that it was too early to estimate the damage inflicted. In five patients the encephalitis proved fatal early in the disease. Among the survivors, three were found to be completely restored to health; another three showed no serious ill-effects; three showed slight damage as indicated by an abnormal encephalographic report; and six showed serious ill-effects, which in two appeared as epilepsy. Other serious sequelae included mental deficiency and spastic palsy. It would thus seem that more or less complete recovery could be claimed for only 30% of the total. Steen points out how disappointing the action of antibiotics is in patients with encephalitis due to measles. The same must be said of chemotherapy, with the result that encephalitis has now become the most dangerous complication of measles. Only a decade ago, pneumonia was the most serious complication, and it has ceased to be so thanks to antibiotics. During the period 1926-1935 there were 45 deaths from pneumonia among the 8,865 patients with measles reported in Norway, whereas in the period 1943-1953 there were only 8 such deaths among a total of 17,104 cases reported. Steen, whose report is published in *Nordisk medicin* for Oct. 21, 1954, draws attention to the higher measles death rate in girls than in boys. Only one of his patients who died was a boy, and, among the 78 persons who died from measles in Norway in the period 1948-1952, 47 were girls.

Abuse of Narcotics.—Of 1,200 patients with acute drug and alcohol poisoning who were admitted during the past four years to the medical department of the Ullevaal Hospital, in 750 cases were due to barbiturates, in 140 to preparations of opium, and in 150 to alcohol. Little provision is made for the welfare of drug addicts as compared with that for the victims of alcoholism, whose families can receive financial support from public funds under certain circumstances. While alcoholics can be given institutional treatment more or less at public expense, there are no corresponding benefits for the drug addict. Debating the matter in Parliament, the spokesman for the government pointed out that there has been no increase in the import of narcotics

since 1946 and that smuggling does not greatly increase this import. The concentration of the import of drugs to Norway in a single body under official control is now a safeguard against any indiscriminate import, and the tightening up of the conditions under which narcotics are dispensed to the public gives further promise of more effective supervision. The authorities are now contemplating administrative changes calculated to confer on drug addicts some of the advantages already enjoyed by alcoholics, including facilities for the compulsory admission of the former to appropriate institutions.

SWITZERLAND

Viper Venom.—At a meeting of the Swiss Academy of Medical Sciences in Lausanne, Grasset and Schwartz of Geneva reported on the inhibiting effect of heparin and dextran sulfate, alone or combined with corticotropin (ACTH) and cortisone, against the action of the coagulant hemorrhagiparous venoms of the Vipera russellii of India and the Vipera aspis of Europe, which, through the formation of thrombosis and emboli, may lead to death even more quickly than the neurotoxic cobra venom. Up to now, only serotherapy was available, but, according to the authors' observations on rabbits, the above combination is favorable even with regard to the late effects of these venoms, which can also prove fatal. The antihistaminic effect of cortisone and corticotropin would be specifically indicated for the treatment of poisoning with viper venom in allergic persons who even after stings of bees, wasps, and hornets show alarming and even fatal effects.

Leprosy.—At the same meeting Professor Tréfouel, of the Pasteur Institute, Paris, reported on the treatment of leprosy by sulfones in French Guiana. Animal experiments in leprosy are very difficult, because Mycobacterium lepraemurium is a pseudotuberculosis bacillus, so that animal experts cannot guide the clinical trials. For example, streptomycin is much superior to the sulfones in the treatment of rat leprosy but is without any effect against human leprosy. Such substituted sulfones as sulfoxone and glucosulfone (Promin) have the same secondary effects as the sulfone mother substance, namely di-(*p*-aminophenyl)-sulfone. In the organism the derivatives are easily split to this mother substance, which is the true active substance. Another interesting biological phenomenon is that glucosulfone splits off much more mother substance in the intestinal tract than in the blood. This explains why it is effective if given by mouth in the tuberculosis of guinea pigs but not when administered parenterally. For the same reason, in treating human beings, only 2 gm. of glucosulfone can be given by mouth, but 15 gm. is required when it is given intravenously (the toxicity of the mother substance is the same in both methods of administration). Thus, the situation is similar to that with sulfonamides: The desired effect depends, not on substitution on the amino groups, but on the fact that one or both amino groups are free.

The Metabograph.—At the same meeting Prof. A. Fleisch of Lausanne demonstrated his metabograph, an apparatus for measuring the respiratory metabolism that is based on a closed circulatory system. It registers all important facts of respiration on white paper, at all metabolic intensities, from basal metabolism up to 5 liters of oxygen consumption per minute. This apparatus registers directly and continuously for units of 60, 30, or 15 seconds (1) depth of respiration at 37 C, ambient barometric pressure, and water vapor saturation; (2) volume of respired air per unit of time; (3) quantity of carbon dioxide produced, directly reduced to 0 C, 760 mm. Hg, and absolute dryness; (4) oxygen consumption; (5) ventilation equivalent for the absorption of 100 ml. oxygen; and (6) respiratory quotient. The metabograph has the following advantages: respiratory resistance is imperceptible, back-respiration is impossible; the oxygen concentration of the air remains constant, and the carbon dioxide absorption is practically complete. The oxygen concentration of the air circulating in the system can be altered at will and suddenly by the investigator without disturbing the registration. Professor Fleisch recently received the Marcel Benoist prize of 20,000 Swiss francs for this work.

Plans to Eradicate Malaria from the Americas.—The first continent-wide attempt to get rid of malaria has started in the Western Hemisphere under the sponsorship of the Pan-American Sanitary Bureau. There is reason to believe that coordinated action on the part of all governments will make possible the eradication of malaria in the Americas in a period of less than five years. The total population residing in the malarial zones of the Americas is put at 135 million, of which 60 million (44.4%) live in zones where malaria has been suppressed, 45 million (33.3%) in "protected" zones, and 30 million (22.2%) in unprotected zones. The danger arises from these still unprotected populations, who constitute a reservoir of infection sufficient to reinfect the other areas. The Inter-American program is based on recognition that malaria eradication can no longer be considered merely a local or national problem, but must be undertaken on a continental scale to prevent reinfection across boundaries. The Pan-American Sanitary Conference (WHO Regional Committee) at its October meeting in Santiago, Chile, urged American countries to convert all malaria control activities into eradication campaigns within the shortest possible time, so as to achieve eradication before the malaria-bearing mosquitos develop resistance to insecticides. House-spraying with residual insecticides, such as chlorophenothane (DDT), which is deadly for months, is the principal and decisive factor in antimalarial campaigns in the Americas. Once the transmission of plasmodia from man to mosquito to man is intercepted, the infection in human beings disappears within a few years, as the result of the natural death of the parasite. Experience acquired in areas where eradication has been achieved shows that campaigns to eliminate malaria within a definite period are less costly than programs of continuing control. The standard that must be reached before a country can claim to be free from malaria is reporting three consecutive years without a single case of the disease. In accordance with this standard, malaria has been eradicated from five provinces of the Argentine Republic. Ecuador reports that it has been eradicated from three of its provinces. The United States reports eradication throughout the country, with the possible exception of a few counties in Texas. The Pan-American Sanitary Bureau was authorized to allocate up to $200,000 of its budget for the next two years in order to intensify its antimalarial activities. In order better to finance such a program, its director was authorized to secure financial participation of public and private organizations, whether national or international.

Atomic Energy in Medicine and Public Health.—The role of atomic energy in the development of medicine and biology and the responsibilities of the World Health Organization in this new field were explored shortly in December in Geneva at a special meeting convoked by the director general, Dr. M. G. Candau. The discussions were led by Dr. John Buger, director, Division of Biology and Medicine, U. S. Atomic Energy Commission, with the participation of Dr. A. J. Cipriani, director, Biology Division, Atomic Energy of Canada Ltd., Dr. John F. Loutit, director, Radio Biological Research Unit of Harwell, England, and Prof. Charles Manneback, professor of physics, University of Louvain, Belgium. The consultants dealt with two main topics: (1) the problems of health protection in dealing with atomic energy, including the disposal of radioactive waste material, nuclear reactor safety, definition of radiological units and the standardization of radioactive materials; and (2) the constructive use of atomic energy in biology, medicine, and public health. Discussion on the positive aspects of atomic energy centered on the use of radioactive isotopes in the diagnosis and treatment of various diseases and in medical research. The experts indicated the fields in which the use of radioactive isotopes can lead to important discoveries, among them human biology, diagnosis and treatment, and the epidemiology and control of disease. Furthermore, nutritional problems were discussed, the solution of which depends on advances to be made in agriculture and fisheries.

Death of Professor Rollier.—Prof. Auguste Rollier, the originator of heliotherapy for tuberculosis of the bones and of occupational therapy for patients with this disease, died in Leysin at the age of 80. His world-wide clinical reputation was accompanied by outstanding human qualities.

CORRESPONDENCE

PREVENTION OF INJURIES IN AIRPLANE AND AUTOMOBILE ACCIDENTS

To the Editor:—During the Korean conflict, more Americans were killed at home in one year by motorcars than were killed in three years in Korea. Of the injuries requiring hospitalization in Korea, only a half were due to enemy action. The other half were due to transport accidents, and of these 70% involved motorcars. Motorcars in the United States kill someone every 15 minutes and injure someone every 30 seconds. We must cease calling these incidents "accidents." They are actually a normal accompaniment of the operation of high-speed machinery by human beings. This is borne out by the experience that on such ideal traffic arteries as the Pennsylvania Turnpike and similar modern highways, in spite of nearly ideal traffic conditions, deaths and injuries still occur.

Although there is probably not an airplane seat in the world today that is not equipped with a safety belt, this simple device is not yet used in any appreciable number of motorcars. The safety belt was conceived simply as a means to keep the airplane pilot in his seat during rough weather. It went even further and became the basic factor in the development of stunt flying. It has fulfilled these roles admirably and is now used to protect the airplane passenger during a crash. It has done this not perfectly but well enough that it has stifled efforts to solve the crash problem itself. When a crash of a military plane is imminent, the personnel have worked out a standard pattern of behavior based on theory plus survival. They sit on the floor facing backward, with their backs pressed firmly against a bulkhead and a cushion pressed firmly behind their heads. This same physical situation can be achieved by rearward seating, but the fastening of the seat must be strong enough so that the seat does not pull loose. In modern airplanes with forward seating, it is not the belt that fails; 90% of the seats pull loose and bang around inside the relatively intact hull. In rearward seating, the seat back must extend well above the head, because the head must have good support even if the whole body rises up against the slack of the seat belt and because a high seat back protects the passenger from contact with falling elements of the roof. A further provision must be side-wings and arm rests integral with the seat back. Many fatal injuries are caused by the passenger being hurled by lateral forces against the relatively sharp and rigid arm rest. In almost every crash powerful lateral forces exist, and provision must be made for these by the side-wings and properly designed arm rests. In other words, the passenger seat should look like a barrel-back or wing-back chair with a very high back and a safety belt. With this arrangement the safety belt would revert to its original role of controlling vertically acting forces, which it does very well. The last objection to rearward seating has been removed by the tricycle landing gear, which eliminates the pronounced backward tilt that formerly existed when the plane was on the ground. Those visual stimuli that in some persons induce semicircular canal disturbance exist only for the brief moments of landing and takeoff and are not valid objections to rearward seating in the airplane.

Although the motoring public is not likely soon to adopt rearward seating, we should take a tip from the airlines and see how they construct the pilot's seat. This forward-facing seat adjusts easily in all directions, is comfortable, is as strong as the airplane itself, and is equipped with two belts, the usual one, which is kept fastened at all times, and a 4 in., quick-release chest belt for emergency landings. That this would be an excellent seat for the automobile is indicated by the fact that many stock-car racing drivers remove the conventional seats and install an airplane pilot seat securely attached to the car frame. Motorcar manufacturers have asked: "Would you have women wear shoulder straps or a 4 in. chest belt routinely?" I believe that such use would do no harm, and the injury sustained by the breasts from a 4 in. chest belt in a crash would be minor compared to the injuries sustained by the face and head without the belt.

Since many people will not fasten their seat belts even if the automobile is so equipped, further efforts to produce a crash-worthy automobile are needed. Recent attempts have been made to provide crash pads on automobile instrument boards, but they have been inadequate. A substantial crash pad could be provided by using cellular plastic foam that would absorb a great deal of energy if struck by a passenger's face or head. This could be covered by foam rubber and leather to make it wear resistant. To be reasonably effective this should be several inches thick. I believe that the front of the passenger space of the automobile, from the bottom of the windshield down to the floor, should be occupied by a 4 to 6 in. thick mattress of this material suitably backed by a smooth, resilient sheet of metal. With this should be combined some form of resilient windshield, either the "pop-out" variety found in some cars today or, better, a plastic sheet coated with a glass layer on the outside to resist abrasion. A pad of energy-absorbing material should line the front half of the top of the automobile with increased thickness as the windshield "header" is approached. Glove compartments, clocks, etc., can be moved to less dangerous spots. Since 20 to 25% of motor car deaths are due to chest injuries and a large proportion of these in drivers are due to the steering column, a broad, energy-absorbing crown for the column must be provided and the column itself be transformed by an inertia lock or a series of shear pins into an energy-absorbing device. With the advent of power steering, the column is obsolete, and the wheel may be mounted in any other way that is best from the safety standpoint. The opening of front doors in accidents is also common, and ejection significantly increases the risk of injury. The manufacturers must provide crash-proof doors.

None of these ideas or recommendations is new. Most of them have been advocated for the last 20 years. They have not been adopted simply because of the lack of public demand. One manufacturer supplied 50,000 seat belts in 1950 and reported later that 49,000 were never used. Passengers just did not bother with the inconvenience of being strapped in. Physicians should be the first to write letters to the manufacturers of the cars they drive and ask for specific safety improvements. Ten thousand letters from physicians and their patients should have some effect.

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SURGICAL ANESTHESIA

To the Editor:—In the Dec. 25, 1954, issue of THE JOURNAL, page 1628, Dr. Amos R. Koontz comments at some length on a patient being made to cough vigorously while still under the effects of an anesthetic and on the hazards of this procedure in terms of what might happen to the wound. It may be, as the author states, that "the practice of sucking out the trachea is very much overdone," and in the case in point the surgeon may have been quite justified in accusing the anesthetist of "not playing on the ball team," but in the process of stating his point so vigorously Dr. Koontz has gone to the opposite extreme and has suggested certain procedures which are both ineffective and hazardous.

He states, "If, at the end of operation, after the anesthesia has become light, it is considered necessary to do it [i. e., tracheobronchial suction], a little additional thiopental sodium will usually abolish the patient's reflexes and avoid trouble." This is not good thinking from two standpoints. 1. A little Pentothal will not "abolish the patient's reflexes," certainly not his cough reflex. It will merely serve to depress the respiratory center and help to set the stage for pulmonary atelectasis in the post-anesthesia period. 2. At that time in the course of operation and anesthesia, if tracheobronchial suction is to be at all effective, the cough reflex should be active so that the stimulus of the catheter in the trachea will help mobilize secretions further down in the tracheobronchial tree in order that they may be

aspirated. Dr. Koontz himself states that "the mucus that causes atelectasis and other respiratory difficulties is much lower down," that is, beyond the reach of the suction catheter. This is a valid observation which all bronchoscopists have made who are called on to treat postoperative atelectasis. But Dr. Koontz would have his patient lie there quietly while the trachea and bronchi are being aspirated. Yet he admits that the mucus is thereby beyond reach and rejects any procedure which would bring the secretions to the aspirating catheter. This is like trying to eat your cake and still have it. But what is even more important is the hazardous procedure advocated when the correspondent goes on to say, "After the operation is over, it is highly important for the patient to be given a narcotic as soon as he shows any evidence that he is about to start struggling." There are three serious objections to this recommendation: 1. Narcotics are potent depressors of centers of vasomotion, and after a surgical procedure a patient may suffer a serious alteration in hemodynamics by the use of a narcotic producing a serious fall in blood pressure. 2. Any "evidence" of struggling may be a warning sign that the patient is mildly or moderately hypoxic. A narcotic given at this point might result in a much more serious degree of oxygen want. It is a common observation among anesthesiologists that a liberal amount of oxygen at this point would be much more salutary than a narcotic. 3. The deliberations of the Philadelphia County Medical Society's anesthesia study commission often bring out cases where the respiration of a patient who has received a narcotic at the end of a surgical procedure becomes badly depressed and, in a moment of unattendance back in bed, he asphyxiates and dies.

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THE MENOPAUSE

To the Editor:—Dr. J. E. McFarland's letter to the Editor in The Journal of Nov. 27, 1954, page 1273, prompts a reply because he voices some ideas that are not practiced by a large number of doctors in 1955. If a patient definitely has symptoms due to the menopause, hormonal therapy can successfully be carried out with oral medication. I have not seen it fail. I have not had to use a needle for many years, since the first adequate preparation for oral medication has been available. Oral medication is successful, inexpensive, and easily controlled as to dosage and withdrawal. Needle therapy is therefore unnecessary, since it is expensive, wastes the patient's and doctor's time, is hurtful, and often supplies the patient with a masochistic weapon to be used on her family.

The use of the needle also has many aspects in medicine that are dangerous and will always be with us because of a certain few who practice medicine with their hands instead of their heads and hearts. Like the penicillin "shot" for everything from dandruff to ingrown toenails, the use of injectable hormones becomes an excuse. I do not want to parade in print what these excuses are. Too many times the use of the needle for innumerable illnesses has set a pattern in a number of people who expect and in many instances demand of a doctor this kind of therapy. I am sure many doctors are told by the patient what the diagnosis is and what the therapy should be. In many instances this is acceded to because they are afraid the patient's future patronage will be lost.

An analysis of Dr. McFarland's reasons for therapy by injection is interesting. As a nonpsychiatrist who does considerable psychotherapy with patients who happen to be in their menopause, I understand Dr. McFarland's need for giving the injection, but it is a poor plea in this day and age. He describes emotional instability which he no doubt tries to cope with, but his method is inadequate for the patient as well as himself. I say this because Dr. McFarland states that "the patient would not return" if not given an injection. The injection is used to give "respectability" to the office visit. Techniques providing these incentives to return, if needed, are not difficult and do not need the label of menopause. Successful amelioration of symptoms due to unstable interpersonal relationships in the patient's family and her environment can be carried out and is being carried out by those of us who take time and effort in other modalities without recourse to the needle. The appreciation expressed by patients who happen to experience difficulties in the years of their menopause when treated with psychotherapeutic techniques attests to its efficiency and the mutual satisfaction derived.

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RAUWOLFIA AND PAROXYSMAL TACHYCARDIA

To the Editor:—The following note concerning the use in six patients with paroxysmal auricular tachycardia of Rauwolfia serpentina, by which three patients were improved, may be of some interest to your readers.

1. During 1952 and 1953 I treated a white woman, aged 78 years, for cardiac decompensation incident to coronary sclerosis. During July, 1953, the patient was admitted to the Pennsylvania Hospital to control the symptoms of cardiac failure. For some 50 years the patient had suffered from bouts of rapid heart action lasting from ½ hour to 12 hours and recurring as often as two to three times weekly. It should be noted that she was highly nervous and excitable, although always most cooperative and helpful. Because of an exacerbation of her nervous state in 1954, and because she reacted poorly to the usual sedatives, I prescribed reserpine (Serpasil), 0.25 mg. to be taken twice daily. From that time on, so long as the patient took even as little as 0.1 mg. of reserpine at bedtime, no further paroxysms of tachycardia occurred. On two occasions when the patient stopped taking the drug she had recurrences. These ceased when the drug was resumed. The patient died suddenly in October, 1954, following an episode of thrombophlebitis for which she refused hospitalization and anticoagulant treatment. Following the above dramatic response, other patients with this condition were followed up and asked to use the drug as a trial preventive.

2. A white man, aged 63, with cardiac failure due to coronary sclerosis, was under treatment in May, 1954, at the Delaware County Hospital. This patient stated that he was "very nervous; always had been" and that he had suffered frequent attacks of tachycardia for many years. Five to six bouts daily occurred while under observation, lasting from one to four hours. Several electrocardiograms during hospitalization confirmed the diagnosis of paroxysmal auricular tachycardia. Following a dosage of reserpine of 0.25 mg. four times daily, the attacks became much less frequent (one to two daily) and much less prolonged (several minutes only). They no longer upset the patient, nor did they cause the usual nervous response, fatigue, and exhaustion.

3. A white woman, aged 55, was seen in consultation in May, 1954; she had been given a clinical diagnosis of paroxysmal auricular tachycardia. At the time of examination there was evidence of minimal myocardial damage secondary to coronary sclerosis on the electrocardiogram and ballistocardiogram. Attacks of rapid heart action had been occurring at approximately monthly intervals, with a duration of 12 to 24 hours, resulting in considerable exhaustion and disability. To date, with a dosage of 0.1 mg. of reserpine at bedtime only, one further attack has occurred. This followed a two week session of "baby-sitting" for young grandchildren.

Three other patients with a diagnosis of paroxysmal tachycardia were unsuccessfully treated: a 45-year-old white female telephone switchboard operator with considerable emotional tension, a 55-year-old white male real estate agent with mitral stenosis, and a 34-year-old white man suffering from an acute myocardial infarction (atrial involvement?). Only the first of these three could have expected help, but this patient claimed her coincident "upset stomach" prevented taking the drug.

Because of both its central depressant effect and its local vagotonic effect, the Rauwolfia alkaloid might be expected to have a favorable action in controlling this fairly common and often disabling disorder. In the instances recorded of complication with atrial disease the patients could hardly have expected benefit if this disease were the basis for the arrhythmia. Undoubtedly this drug will not be a panacea for the prevention of paroxysmal tachycardia, but I suspect others may find it useful in helping certain patients. In the cases reported, all blood

pressures were within normal limits. It should be mentioned that reserpine had no effect in stopping the tachycardia during actual paroxysms in any of these patients.

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STASIS ULCERS

To the Editor:—The article "A Medical Treatment for Stasis Ulcers" in the Jan. 1, 1955, issue of THE JOURNAL, page 27, states, "Chronic, nonspecific ulcers of the leg, commonly called stasis ulcers or varicose ulcers, have presented a difficult therapeutic problem for many years." The author lists many types of treatment which have been used for "stasis ulcers" in the past and concludes that "none has offered more than fair results." He then presents a well-documented study describing the use of antibiotic powders for these ulcers. It is an excellent paper, and it stimulates much-needed interest in this field. This subject deserves further comment because the problems it presents are so prevalent.

There has been a great tendency in recent years to lump all ulcers of the leg into one category and attempt one type of treatment for all. Every ulcer has a specific, although perhaps not readily apparent, cause. Some are due to varicose veins, some to peripheral arterial disease, some to trauma, some to dermal lesions, some to the chronic edema of deep venous insufficiency (probably the largest group), and some to other specific conditions such as syphilis or sickle-cell anemia. The ulcer associated with varicose veins is usually directly precipitated by trauma in the ankle region, but it is the venous stasis associated with the varicosities which prevents normal healing. Ulcers of the toes may be due to an underlying arteriosclerotic peripheral vascular disease, and the arterial blood supply may be so impaired as to preclude the possibility of healing. The healing of ulcers in the region of the malleoli (usually due to varicose veins or deep vein insufficiency) is necessarily difficult because of the lack of well vascularized tissue in this area.

Each ulcer presents an individual problem, and before any treatment is instituted the exact etiology should be determined. There is no one method of treatment for all ulcers. The stripping of varicose veins will produce healing of an ulcer only if the lesion is primarily due to varicose veins. If operation is indicated, it should be performed only after all active infection has been eliminated. If the ulcer is secondary to postphlebitic edema, only complete elimination of the edema will produce healing. This usually can be accomplished, on an ambulatory basis, by means of the proper use of elastic supportive bandages. It may be necessary to continue the use of bandages indefinitely, since no known surgical method is uniformly successful in eliminating postphlebitic edema. If a leg ulcer is due to syphilis, only antisyphilitic therapy will cure the ulcer. If there is active infection in an ulcer, an attempt should be made to determine the exact organism present so that specific antibiotic therapy can be given. Many of my patients have developed severe local and generalized reactions as a result of the use of antibiotic ointments, so that I prefer the parenteral or oral route. A patient may have several disease processes underlying an ulcer. There may be a fungous infection complicating an ulcer which was originally due to a combination of varicose veins and postphlebitic edema. In this instance, three different pathological processes would have to be treated.

With the use of bed rest or other types of treatment, it is often possible to achieve temporary healing of an ulcer, but the lesion invariably recurs if the underlying disease process is still active. Therefore, therapy for any leg ulcer should consist of treatment of the specific underlying cause. At the same time, all complicating factors, such as infection, must be corrected. No one type of treatment will cure all ulcers. An occasional ulcer, such as one due to marked arterial disease, may be resistant to all forms of therapy. However, in the vast majority of patients healing of an ulcer will invariably occur if all existing abnormal conditions are recognized and corrected.

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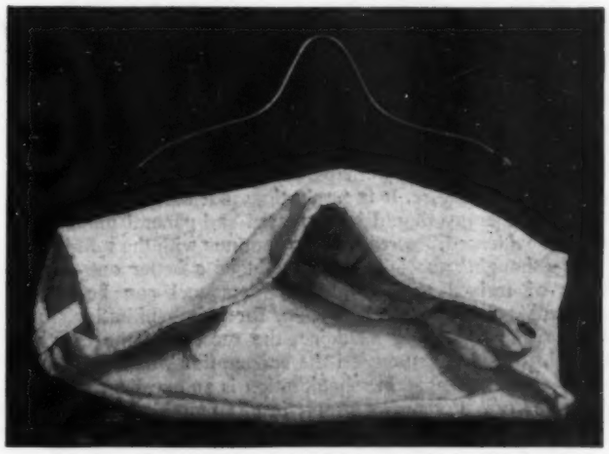
NEW AID TO FITTING A GAUZE MASK

To the Editor:—A problem sometimes confronting operating room personnel is the "steaming up" of eyeglasses. Difficulties arise for persons who have high-bridged noses when the relative humidity in the room is high, either because of the climatic conditions or because a sterilizer is discharging steam into the room. Various glass-coating soaps and waxes cause disappointment, since their protection is incomplete and temporary, breaking down with high humidities and in the middle of long operations. The difficulty is met satisfactorily by a mask bearing a strip of lead or aluminum molded to the bridge of the nose. A special mask is needed that has a cloth channel for receiving the metal strip. The deep openings lateral to a high-bridged nose are thereby sufficiently closed so that expiration occurs, as it should, through the meshes of the mask. This presupposes proper adjustment and tightening, of course.

There is some advantage in a new method, by which a stainless steel wire may be bent carefully to conform to the shape of the bridge of the nose and cheeks and then inserted in the hem of any mask whatever (see illustration). For success in penetrating the hem without damage, the leading end of the wire should be tapered with a fine file so that it resembles a sharpened pencil, but with the tip smooth and rounded. A strip of some malleable metal may be molded to the face and used as a pattern for shaping the stainless steel wire. A ¼ in. (0.64 cm.) loop should be formed on the trailing end of the wire. The



actual dimensions of the wire stock are 0.052 in. (1.32 mm.) in diameter (American Steel Wire Gauge 55) and 7.25 in. (18.42 cm.) long, but it is best to start with too long a piece, form the bends, and then trim and finish both ends. The length on completion is 5 in. (12.7 cm.). Any burrs and plier marks must be polished away. Once a person has such a wire, properly fitted, he is in possession of a lifetime piece of equipment that may be used over and over again without being rebent and without deteriorating from rusting or other cause. Any mask will be found adaptable. With either type of reinforced mask, steaming sometimes still occurs when humidity reaches 100%, and then it becomes necessary to tuck the upper edge of the mask beneath the lenses, even though this displaces the eyeglasses slightly outward from the eyes.

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FOGGING OF GLASSES

To the Editor:—I was interested in the letter to the Editor in THE JOURNAL of Jan. 8, 1955, page 171, captioned "A Simple Remedy for Foggy Glasses," by Drs. Littell and O'Connor. During my residency training at the University of Illinois Eye and Ear Infirmary, the problem of fogging of glasses was solved by one of the surgical nurses, who simply advised me to apply a strip of 1 in. Scotch tape across the upper portion of the mask so that the adhesive tape stretches across the bridge of the nose and skin beneath both eyelids. The tape in this manner

prevents air from passing upward to fog the glasses, since the barrier is a perfect one. One can insure total comfort by pulling the mask downward slightly in order to avoid placing the Scotch tape on any portion of the skin overlying the orbicularis muscle of the lower lid. Upon completion of the surgical procedure, removal of the adhesive is without any discomfort or skin irritation. In the event the surgeon should be endowed with a protuberant proboscis, it will be advisable to split the tape into two sections. One applies the first over half of the upper mask border, and the second to complete the coverage. An overlapping third piece may be necessary to insure airtight closure over the bridge of the nose.

The above method is not original with me but was passed on to the students in the course of my training in ophthalmology. I have never found this information in print and therefore pass it on to you in the hope that it may be useful to those for whom the problem of fogging glasses has been a source of irritation.

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REHABILITATION

To the Editor:—The Oct. 23, 1954, issue of THE JOURNAL has only just reached me in Bari, with its excellent articles by Dr. Solomon (page 753), by Drs. Marks and Goodgold (page 755), and by Dr. Covalt (page 758) on various aspects of physical medicine and rehabilitation. While the several articles presented were clearly not intended to offer a total picture of the field of rehabilitation, one significant aspect of the work seemed to me to be missing from the discussions: that of recreation. Recreation—like its cousin, occupational therapy—has long been used with good results in mental institutions and has for just as long been laboring under a perhaps unfortunate and certainly misleading nomenclature. It is surely time that areas of use of this important therapy should be increased and general understanding of it evidenced. Recreation—to continue with the well-known term, although "resocialization" might be a better one—in the hands of trained and enthusiastic personnel can be of immeasurable value to the physician, for in rehabilitation, more than in any branch of medicine, the success of the care will depend, to a large extent, on the cooperation of the patient. A happy patient engaged in rehabilitation is an excellent prospect; a dejected one presents an almost insurmountable problem.

Between the lay and the medical world there is very often, unhappily, a wide gulf. Patient and physician often do not speak the same language, but there must be a common language, for in rehabilitation patient and physician are going to be exposed to each other for long periods of time, in various states of patience and of composure. The "therapist" in recreation is the man who primarily speaks the common language. Invested with no title or uniform or instruments or office, he ought to be able to gain quickly the informal confidence of the patient; given proper training and a discreet personal make-up, he ought to be given the full support of the physician. The recreation "therapist" has three main offices: (1) to help the patient occupy his leisure hours; (2) to, by his manner, convince the patient of his implicit human dignity, retained intact through a paralyzing illness or accident: in a word, to boost the patient's morale and keep it boosted; and (3) to advise the psychologist and the physician on what the patient is like, when he is seen unofficially and informally. A significant aspect of physical medicine and rehabilitation is that, as an applied branch of medicine, it reunites for the benefit of the patient the work of many specialists. Rehabilitation treats the whole person and not simply an arthritic wrist or a paralyzed extremity. If rehabilitation does not treat the whole person, it falls far short of the mark. The whole person, even in the hospital, includes the joy-of-life (or lack of it): the intangibles that make for a sense of well-being. An intelligent, respected program of recreation is here of infinite value.

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MANGO DERMATITIS

To the Editor:—I was very interested in the article entitled "Mango Dermatitis" by Dr. L. C. Goldberg in the Nov. 6, 1954, issue of THE JOURNAL, page 954. I was especially surprised to read that case reports were "few and far between." In this area of South India mango dermatitis is so common that patients diagnose it themselves and do not bother to come to the dermatology clinic for this, because they know the disease is self-limited. Frequently, patients coming in for other complaints, when asked about a patch of dermatitis on the face, will dismiss it with the words, "Oh, that is nothing. I have eaten mangoes." Certain mangoes are known to be more likely to sensitize than others. The villagers also know that the sensitizing agent is in the sap which comes from the tree when they pluck the fruit, rather than in the fruit itself. One of our dermatology staff has estimated that, during the season when the fruit is still green, 15 to 20% of the children in a village will have a mild perioral dermatitis from eating the green fruit freshly plucked from the tree.

Following is a case report of a mango dermatitis a little more extensive than is usually seen: A 35-year-old American man had lived in India from 1946 to 1949. At that time he became very fond of mangoes and could eat two or three at a time without any indication of sensitivity. During the following years he ate a mango while in the United States on two or three occasions. The day of his return to India, in March, 1953, he bought a mango which was still a little unripe and ate the pulp very close to the skin. Within 12 hours he noticed perioral itching and swelling of his lips but paid no attention to it. The second day he took one Benadryl tablet. By the evening of the third day edema had spread to include one entire side of his face, and he was given antihistamine every four hours. On the fourth morning the dermatitis was acute and one eye was swollen shut. Improvement was marked on the fifth day and continued throughout the week. Although suspecting the mango as a source of the allergy, he discovered that he could eat the fruit if, by using a knife and fork, he did not touch the skin of the fruit to his lips. But in order to prove the allergy to himself, without informing his doctor, some weeks later he rubbed some mango skin on his lips. Within two hours his lips began to swell, but this time the reaction was checked by early antihistaminic therapy. Three or four hours after each dose, his lips would start to swell again as the antihistaminic began to wear off. Since then he has had no further trouble except once after eating some green mango pickle by mistake. He has a definite allergic history and is sensitive to sulfonamides, poison oak, and poison ivy.

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DRUG ADDICTION

To the Editor:—I have recently seen a letter to the Editor from THE JOURNAL of Oct. 23, 1954, page 787, written by Dr. Anslinger, who complained that he was being pestered by various individuals and groups with complaints that the American law as regards dangerous drugs should be altered to approach that of the United Kingdom. He asserted in no uncertain terms that the law on this subject was exactly the same in the two countries. This is very surprising, as addiction to drugs is very much greater in New York than in London. I wish to point out one difference, and I think it is a very vital difference. The import and manufacture of heroin is prohibited in the United States. This is not so in Britain; here it and hemp (marihuana) have been removed from the Pharmacopoeia to fall in line with the International Narcotic Convention, but any doctor can still prescribe and obtain them.

Heroin has recently become the most vicious drug in New York because it can only be obtained in the black market, so a black market is produced to supply it and has been accused of refusing it to victims unless they introduce others. Here a doctor is free to prescribe any substance, even Cannabis indica, if he considers it helpful in curing his patient, as long as he keeps a

record of the dangerous drugs and for whom he prescribes them. Of course there is a small smuggling of drugs into Britain, but the smugglers are generally known and caught. There is a small black market because victims are ashamed and frequently do not know that they could get help and their necessary supplies from their doctor on the National Health Service. It has been suggested that notices to this effect posted in public lavatories would kill even the small black market that exists. Opium smoking is confined almost entirely to the Chinese and use of hemp to the Negro jazz bands and frequenters of the dance halls in which they play. The Home Office can trace almost all the dangerous drugs to their consumers. Here it is not an offense to take them, but illicitly to provide others with them incurs severe penalties.

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DIAGRAMS FOR PATIENTS WITH HEART DISEASE

To the Editor:—It is often very helpful to explain to the patient with heart disease the exact nature of his illness. This allays anxiety, facilitates treatment and recovery, and makes for a better relationship between the doctor and the patient. I have found a simple, time-saving way of explaining cardiac lesions to my patients. This method is particularly helpful when surgery is necessary. Two diagrams have been drawn at my request by George Thomas, medical artist, Brooke Army Hospital, Fort Sam Houston, Texas. The first diagram (fig. 1) is a cross section of the heart. Cardiac chambers, valves, main arteries, and veins are easily identified. The diagram is so designed that a ductus arteriosus, coarctation of the aorta, valvular abnormality, septal defect, or a number of other lesions can be easily demonstrated.

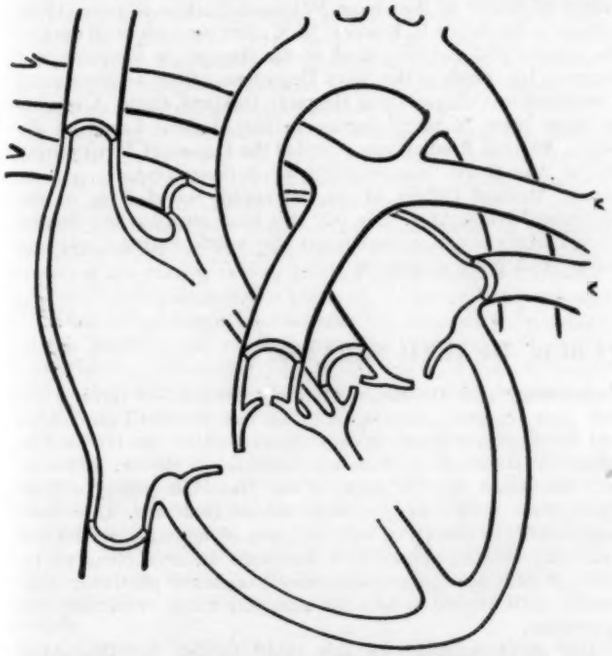

Fig. 1.—Cross section of heart showing heart chambers, valves, and great vessels.

I begin the explanation by tracing the normal course of the circulation with a red and blue pencil, briefly mentioning the magnitude of cardiac output at rest and with exercise. With this background I am then able to describe in a simple and direct fashion septal defects, valvular abnormalities, and anomalies of the great vessels. I mention the diagnostic studies of angiocardiography and cardiac catheterization and briefly describe surgical techniques when indicated. Most patients have surprised me with the ease with which they will understand their problems.

The second diagram (fig. 2) shows the coronary circulation, the blood supply to the heart muscle. With this diagram only a few minutes of explanation are necessary for the patient to readily comprehend the process of coronary occlusion and myocardial infarction. He is able to appreciate how one heart attack may differ from another depending on the site of occlusion of the coronary artery and can be shown how his future is affected by the development of a collateral circulation. I have made

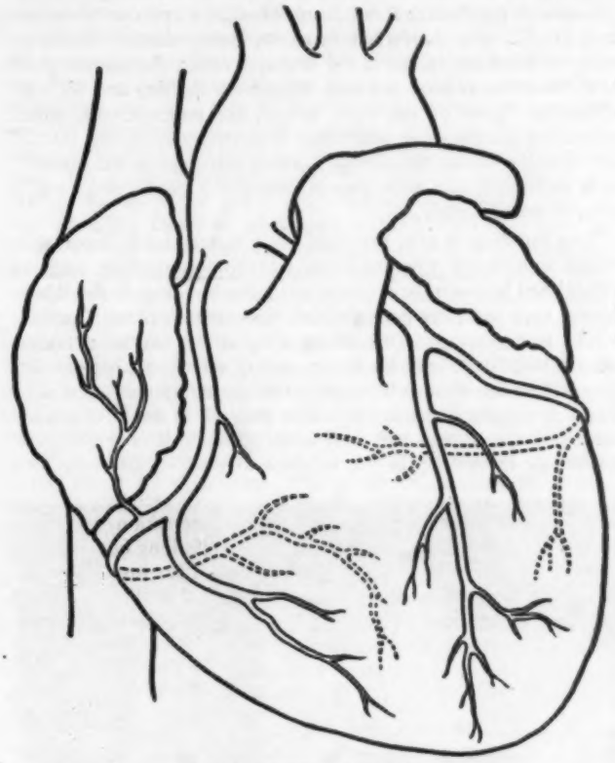

Fig. 2.—Coronary circulation.

these diagrams available to other doctors by having them printed and assembled in tablet form. The pages are detachable so that the patient may receive a diagrammatic illustration of his individual cardiac difficulty. He is then able to refer to this diagram from time to time as questions arise in his mind concerning his illness.

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SOCIAL SECURITY FOR PHYSICIANS

To the Editor:—I would like to refer to a letter in the Correspondence column of THE JOURNAL of Jan. 29, page 468, written by Dr. Henry Rathle in reply to the one entitled "Social Security for Physicians" by Mrs. Florence Chieffo, R.N., in THE JOURNAL, Sept. 11, 1954, page 194. I wish to state that I am in hearty agreement with Mrs. Chieffo's statements and feel it would be a grave injustice to shackle physicians with compulsory social security taxation, from which the majority would never get any benefit whatsoever. I believe that the whole structure of social security compulsion is undemocratic and un-American and is in line with other socialistic tendencies of the times, which should be regretted and repulsed by all right thinking men. Compulsory social security, as above stated, is strictly against the principles of democratic government, but voluntary social security for those who desire it should be permissible. Let's leave the doctors unshackled further!

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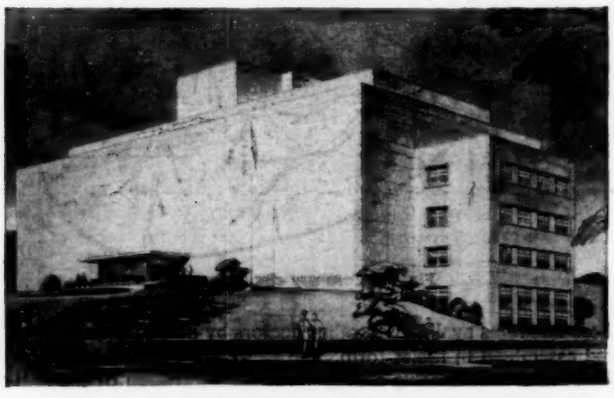
GOVERNMENT SERVICES

ARMY

Armed Forces Institute of Pathology.—The recently completed quarters of the Armed Forces Institute of Pathology on the grounds of the Walter Reed Army Medical Center in Washington, D. C., is a reinforced concrete, bomb-resistant building, with no windows except in the two end wings. All usable space in the building is provided with fluorescent lighting and air conditioning. Three of the eight stories are underground. Other protective features are additional reinforcement of the side of the building facing the capitol, keeping openings in the building to a minimum, and provision of emergency power units and a reserve water supply.

The building is also provided with closed-circuit color television equipment whereby television communication may be established between the institute and other buildings in the Washington area and later perhaps with more distant cities. The television studio occupies the entire wing at the southeast corner of the building. Facilities for recording televised programs on film will be installed so that instructive presentations can be used to teach successive groups. It is also planned to establish a color television circuit that will enable the pathologist in the surgical pathology laboratory in the institute to observe and talk with



New quarters of Armed Forces Institute of Pathology.

the surgeons in any of the operating rooms in the Walter Reed Army Medical Center and the surgical team in turn to view gross and microscopic preparations bearing on the case at hand.

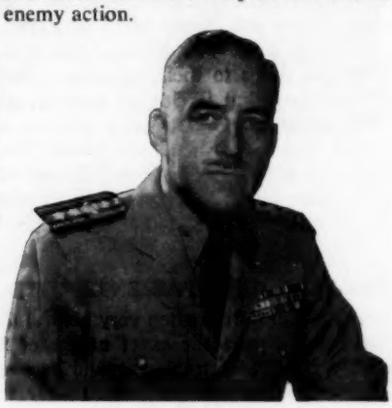
Personal.—Col. Conn L. Milburn Jr., director, department of professional sciences at Medical Field Service School, Fort Sam Houston, Texas, was presented a certificate of achievement by the commandant of the school on his departure for England, where he will be assigned to the U. S. Embassy as a medical attaché. Colonel Milburn has been in the Army since 1936. He is a diplomate of the American Board of Internal Medicine and of the American Board of Pediatrics. Among his decorations are the Legion of Merit, the *Croix de guerre* from France, the *Croix de guerre* from Belgium, and the *Croix de cheme* from Luxembourg.

NAVY

Admiral Hogan Appointed Surgeon General.—Rear Adm. Bartholomew W. Hogan, M. C., took the oath of office as Surgeon General of the Navy on Feb. 15 to serve for four years. Admiral Hogan is the first native of Massachusetts to hold this office. His degree of doctor of medicine was from Tufts College Medical School, where he was awarded the Phi Lambda Kappa medal for highest achievement while attending medical school.

He has served, among other places, as assistant chief of neuropsychiatry at the Naval Hospital, Washington, D. C., as an instructor at the Naval Medical School, and as associate professor of psychiatry at Georgetown University School of Medicine. He was aboard the carrier U. S. S. Wasp when it was torpedoed by a Japanese submarine Sept. 15, 1942. For heroic service during this action, he was awarded the Silver Star. He was awarded the Navy and Marine Corps medal for service on board the destroyer U. S. S. Duncan and the Purple Heart medal for wounds received in enemy action.

Admiral Hogan has commanded the Naval Medical School and the Naval Hospital in Bethesda, Md. In 1953 he reported as fleet medical officer, staff, commander-in-chief, U. S. Pacific fleet, and chief of staff for medical matters to the commander-in-chief, Pacific. In April, 1954, he became deputy and assistant chief of the Bureau of Medicine and Surgery.



Rear Admiral Hogan.

He is a fellow of the American College of Physicians and American Psychiatric Association, diplomate of the American Board of Psychiatry and Neurology, a member of the American College of Hospital Administrators, and a member of the house of delegates of the American Hospital Association. He is an examiner for the American Board of Psychiatry and Neurology. In 1945 he received the honorary degree of doctor of laws from Mt. Saint Mary's College, Emmitsburg, Md., and he received an honorary degree of doctor of laws from Villanova College in June, 1954.

Rear Adm. Bruce E. Bradley, M. C., has been assigned duty as the deputy and assistant chief of the Bureau of Medicine and Surgery. He comes to the Navy Department from assignment as Commanding Officer, Naval Hospital, Oakland, Calif. A veteran of more than 28 years' service in the Medical Corps of the Navy, Admiral Bradley was awarded the Legion of Merit during World War II for "exceptionally meritorious conduct . . . as Senior Medical Officer of an Advanced Naval Base in the Solomon Islands Area." He has also been awarded the Second Nicaraguan Campaign medal and the Asiatic-Pacific Campaign medal with one engagement star.

PUBLIC HEALTH SERVICE

Embryology and Development Study Section.—Twelve scientists have accepted assignments to the new Human Embryology and Development Study Section announced by the Division of Research Grants of the National Institutes of Health, Bethesda, Md. Dr. Louis M. Hellman, of the State University of New York, New York City, has been named chairman. This study section will be concerned with the area of human reproduction and early development. There has been an awakening of interest in such problems as infertility, pregnancy and labor, congenital malformations, and the newborn infant, especially the premature.

The other members of this study section are Drs. Josef Warkany, Children's Hospital, Cincinnati; Warren O. Nelson, University of Iowa; Edith L. Potter, Chicago Lying-In Hospital; Howard C. Taylor Jr., College of Physicians and Surgeons, New York City; Harry H. Gordon, Sinai Hospital, Baltimore; Louis B. Flexner, University of Pennsylvania; Louis K. Diamond, Children's Hospital, Boston; Duncan Earl Reid, Boston Lying-In Hospital; Katherine Bain, Children's Bureau, Public Health Service; William F. Windle, National Institute of Neurological Diseases and Blindness, National Institutes of Health; and Prof. Donald H. Barron, Yale University. Dr. Elsa Orent Keiles, Division of Research Grants, National Institutes of Health (OLiver 6-4000, Ext. 658), is executive secretary.

COUNCIL ON NATIONAL DEFENSE

The following article has been approved for publication by the Council on National Defense.

FRANK W. BARTON, *Secretary.*

THE "DOCTOR-DRAFT" LAW

Public Law 84, 83rd Congress, commonly referred to as the "Doctor-Draft" law, was approved June 29, 1953. Without further congressional action, that law will expire on July 1, 1955. However, the administration is seeking a two year extension. Congressman Carl Vinson of Georgia introduced a bill on Jan. 24, 1955 (H. R. 2886) to extend the law to July 1, 1957. That bill was referred to the Committee on Armed Services of the House of Representatives, of which Mr. Vinson is the chairman. It appears timely to make a brief report on the history of the "Doctor-Draft" law and to point out the most recent position taken by the House of Delegates on the subject.

BACKGROUND

The first overt attempt at special draft legislation to procure physicians for the military was in the second session of the 80th Congress. That bill, which was opposed by the American Medical Association, was not passed by the Congress. The development of the Korean incident into an armed conflict in June of 1950 precipitated the immediate need, in the military, for large numbers of physicians. In August of 1950 the American Medical Association supported a "Doctor-Draft" law, notwithstanding its discriminatory character, as presented by the Department of Defense. The urgent need for additional medical officers at that particular time allowed only two choices: (1) the recall of reserve officers who had active military service during World War II, or (2) the adoption of legislative provisions for the call-up of physicians in an orderly manner, with those called first who had been deferred during World War II or who, under a Navy V-12 or an Army Specialized Training Program, had received assistance from the federal government to complete or continue their medical education but who had been unconditionally discharged by the Army and Navy in June of 1946.

In testifying on the bills that were later enacted, the Association based its approval on (1) the need of the armed services for medical personnel, (2) the necessity for an equitable selective system, and (3) the desire to avoid the depletion of civilian medical manpower in certain critical areas such as occurred during World War II. The Association's testimony recommended changes in the priority system and urged that medical manpower thus involuntarily acquired be used only on assignments essential to the war effort. Singled out as excluded from such a category was the provision of medical care for veterans, civilian employees of the government, and dependents of service personnel in other than overseas areas or where civilian facilities were unavailable or inadequate.

On Dec. 22, 1952, the Association recommended that a committee composed of civilians be appointed to investigate ways of increasing the attractiveness of service in the armed forces medical services and to develop a more efficient program for medical officers and allied health personnel procurement. As far as is known, action has not been taken to date on this subject, despite the fact that on two separate occasions the recommendation was presented in writing to the Department of Defense.

At the time of hearings on H. R. 4495, 83rd Congress, which was enacted as Public Law 84, 83rd Congress, on June 29, 1953, the American Medical Association concurred in a one year extension of the "Doctor-Draft" law, providing that certain basic amendments were included in the bill. Some of these recommended amendments were adopted; others were ignored. One of the basic points discussed by the Association in its statement dealt with the question of medical care for dependents of service personnel. The Association was at that time, and is still, concerned with the continual increase of dependent medical care as a matter of convenience when adequate civilian health personnel and facilities are available. Since the original limited authorization of 1884, there has been a gradual abandonment of the theory of that permissive legislation. It appears that it is time for the Congress to determine whether the provision of medical care and hospitalization benefits for dependents of service personnel is a proper emolument of military service, and, if so, to what degree and under what conditions such care should be provided, and by whom. Public Law 84, among other things, extended the "Doctor-Draft" law until July 1, 1955.

DISCRIMINATORY NATURE

The "Doctor-Draft" law discriminates against physicians, among others, by singling them out from the entire body of citizenry and subjecting them to special and double liability for military service. No one, other than a physician (or other special registrant) is subject to Selective Service liability after he has attained the age of 26 (age 35 if deferred to continue or complete medical education). Physicians, however, may be inducted by virtue of the "Doctor-Draft" law until the age of 51. A registrant under the basic Selective Service Act may be deferred from military service if he has a child conceived or born prior to Aug. 25, 1953. However, physicians with children born prior to the above date are inducted, unless they are able to demonstrate "extreme hardship and privation." In practice there have been only a very few physicians deferred by virtue of this provision.

Under the basic Selective Service Act, veterans who serve honorably on active duty for more than 90 days between Sept. 7, 1941, and Sept. 2, 1945, are deferred; however, if they are physicians or special registrants, this provision of the law is not applicable. Many physicians with service in excess of 90 days were classified under priority 2 under the "Doctor-Draft" law and have since been recalled to active military service. A much larger group of physicians with extended periods of active military service have been forced to register and are now classified under priority 4 of the "Doctor-Draft" law. They have thus been rendered liable for an additional tour of military service. In the debate on the original "Doctor-Draft" law in 1950, and on the many bills that have extended the effective date of the act, members of the House of Representatives and the Senate have clearly acknowledged the discriminatory nature of the law. They have justified its enactment on the basis of the national emergency, despite its discriminatory nature.

NO NECESSITY FOR EXTENSION

While the "Doctor-Draft" law has provided a mechanism for supplying physicians for the military forces for the past several years, other means must be used after July 1, 1955, when the current act expires. The emergency situation that existed at the time of the original enactment of the "Doctor-Draft" law and at the time of the subsequent extensions can no longer be cited validly as a basis for a continuation of the law. The termination of the hostilities in Korea and Indochina and the reduction of the ratio of over-all troop strength combined with the reduction of the ratio of physicians to troop strength are all factors that point up the fact that a further extension of the law is no longer required.

There is an increasing number of physicians completing their internship training each year without previous military service who are subject to the basic Selective Service Act. These physicians have already received preference, inasmuch as they have been deferred from active military service to complete their medical education. This yearly increment has now reached the point where it is felt that an adequate medical care program for military personnel can be maintained without resorting to discriminatory legislation.

ALTERNATIVE METHODS FOR OBTAINING ADDITIONAL PHYSICIANS FOR MILITARY SERVICE

In the event the number of physicians available under the basic Selective Service Act is not sufficient to meet the medical needs of the armed forces, it will be necessary for the Department of Defense to formulate plans that will meet its requirements. With this in mind, the Association, through its Council on National Defense, has suggested that a joint military-civilian advisory committee be established to study ways of making the military service more attractive. In furtherance of this effort, the Association in February, 1954, endorsed the military medical scholarship program submitted by the Department of Defense. This program would provide for the subsidization of a limited number of medical students in return for a period of obligatory military service after graduation. Endorsement of the program

was made contingent on the condition that students included must not be approached until after entrance into medical school, must receive no special consideration, and the number of participants in each medical class must be limited. Additional suggestions, which the Association has made and which have not been explored, included improved use of medical manpower by the armed forces and of civilian contract physicians in performing the medical duties of the armed services.

It is the belief of the Association that, as indicated above, a sufficient number of physicians can be secured to satisfy the legitimate needs of the armed services through alternative methods. It is recognized that some "minor" amendments to the basic Selective Service Act may be required, assuming, of course, that the basic Selective Service Act is extended beyond its current expiration date of June 30, 1955. Such amendments would probably include a provision permitting a "selective" call-up of physicians who have an obligation for military service under the general Selective Service Act and who have been deferred in order to complete their medical education. Such a provision would not increase a physician's liability in terms of age requirements and would not subject him to the discriminatory features of the present law.

At its recent meeting in December, 1954, the House of Delegates of the A. M. A. expressed itself on the matter of an extension of the "Doctor-Draft" law by stating "that on the basis of current information the House of Delegates commend and express itself as being in complete accord with the Board of Trustees and its Council on National Defense that the 'Doctor Draft Law' should not be extended after June 30, 1955, and that the House of Delegates further express its confidence in the ability of the Board of Trustees and its Council on National Defense to properly handle any new situation which may develop in regard to this highly complex and involved problem."

The Health Resources Advisory Committee of the Office of Defense Mobilization recently issued a report on mobilization and health manpower. Part of its conclusions were that it would be possible to maintain the present physician-staffing ratios of the armed forces with the new graduates of medical schools liable under the basic draft law.

Within the past few weeks officers of the Association and representatives of the Council on National Defense have held conferences with the Assistant Secretary of Defense (Health and Medical) on the entire subject. A report was submitted by the Council on National Defense to the Board of Trustees on Feb. 5, 1955, outlining the recent actions and developments of this draft law. The Association's official position is the same as that adopted by the House of Delegates in December, 1954.

LAW DEPARTMENT

ITEM NOT DEDUCTIBLE FROM INCOME TAX

The Internal Revenue Service has issued the following ruling affecting physicians as well as businessmen.

"Revised Ruling 55-57. Advice has been requested relative to the deductibility of amounts expended by a taxpayer for the travel expenses of his wife who accompanies him on a business trip or to a business convention.

"Section 24(a) (1) of the Internal Revenue Code of 1939 provides that no deduction shall in any case be allowed in respect of personal, living, or family expenses, except extraordinary medical expenses.

"Section 23(a) (1) (A) of the Code provides, in part, that in computing net income there shall be allowed as deductions all ordinary and necessary expenses paid or incurred during the taxable year in carrying on any trade or business. Traveling expenses (including meals and lodging) while away from home in the pursuit of a trade or business are specifically included.

"Section 39.23(a)–2(a) of Regulations 118 provides as follows:

'(a) Traveling expenses, as ordinarily understood, include railroad fares and meals and lodging. If the trip is undertaken for other than business purposes, the railroad fares are personal expenses and the meals and lodging are living expenses. If the trip is solely on business, the reasonable and necessary traveling expenses, including railroad fares, meals, and lodging, are business expenses.'

Such expenses must be directly attributable to the conduct of the business to be deductible.

"Where a wife accompanies her husband on a business trip or to a business convention the Code and Regulations as cited above require a showing that her presence serves a bona fide business purpose, i. e. is not merely for her pleasure or vacation, but is directly attributable to the husband's business and necessary to the conduct thereof. Otherwise, the portion of the expense of the trip attributable to the wife's travel constitutes a nondeductible personal or living expense within the provisions of section 24(a) (1) of the Code. The performance by a wife of some incidental service for her husband, such as the occasional typing of notes or similar service while accompanying him on such trips, does not establish that her presence is necessary to the conduct of his business.

"The Tax Court of the United States (formerly the Board of Tax Appeals) has denied deductions for expenses of a wife who accompanied her husband on business trips in those cases where the wife's presence did not serve a bona fide business purpose. In the case of the *Appeals of George W. Megeath et al.*, 5 B. T. A. 1274, it was held that the portion of the traveling expenses incurred by the taxpayer incident to the transportation and maintenance of his wife who accompanied him on a business trip to Europe was personal in nature and not deductible.

"In the case of *Axel S. Stokby* v. *Commissioner*, Tax Court memorandum opinion entered June 30, 1953, the court had many factors to consider before arriving at the decision that the expenses of the wife who accompanied the taxpayer on several business trips during the years under consideration were not deductible. There the taxpayer, in his unsuccessful attempt to establish that his wife was the proprietor of the business enterprise involved, introduced evidence that his wife signed some business checks, that her name appeared on certain business papers as proprietor, that she did spend some time at the place of business, that she did assist in entertaining customers and others important to the business life of the company, and that one of the South American suppliers of merchandise was arranged for through one of her acquaintances. The taxpayer and his wife made an extensive tour of the United States in 1943, a trip to Florida in 1944, a trip to Brazil and Uruguay in early 1945 and a trip to Denmark in the latter part of 1945. Although the taxpayer was continually contacting actual or potential customers and suppliers on these trips, he and his wife generally managed to include stops at resort cities or visits with relatives in their itineraries. The court found as a fact that the presence of the wife on the trips was not required or necessary for the business, and denied deduction of expenses therefor.

"A contrary decision, however, was reached in the case of *John Charles Thomas et al.* v. *Commissioner*, Board of Tax Appeals memorandum decision entered March 14, 1939, where it was held that the expenses paid for transportation, board and lodging for the wife who accompanied her husband (the taxpayer) on trips which he made in pursuit of his trade or business, as a singer, were deductible. In that case the wife, who was herself trained as a singer, coached her husband in preparation for his singing roles, assisted in perfecting his pronunciation of certain foreign languages which he had to sing, in selecting appropriate costumes, obtaining publicity, planning itineraries, selecting programs for his concerts, and acted as his secretary and typist. On the basis of the information available, the Board found as a fact that the wife performed valuable services for her husband in connection with his business which required her to be with him while traveling away from home and that the expenses incurred for her travel were ordinary and necessary business expenses.

"On the basis of the foregoing discussion and cases cited for illustrative purposes, it is held that amounts expended by a taxpayer for the purpose of having his wife accompany him on a business trip or to a business convention represent nondeductible personal expenses for Federal income tax purposes under the provisions of section 24(a) (1) of the Code, unless it can be adequately shown that the wife's presence on the trip has a bona fide business purpose."

MISCELLANY

CARE OF CHRONICALLY ILL PATIENTS

The Commission on Chronic Illness, which was founded by the American Medical Association, the American Hospital Association, the American Public Health Association, and the American Public Welfare Association, has formulated recommendations concerning the development and utilization of facilities for patients with long-term illness. While the complete report will be issued in the future by the commission, the following abstract is presented for the readers of THE JOURNAL. *It is reproduced verbatim from a news letter issued by the commission.*—ED.

General

1. Care of the chronically ill is inseparable from general medical care. While it presents certain special aspects, it cannot be medically isolated without running serious dangers of deterioration of quality of care and medical stagnation.[2] [[2] "Planning for the Chronically Ill." Journal of the American Medical Association, Oct. 11, 1947; American Journal of Public Health, Oct. 1947; Public Welfare, Oct. 1947.]

2. Care and prevention are inseparable; the basic approach to chronic disease must be preventive, and prevention is inherent in adequate care of long-term patients. Persons and institutions assuming care of the long-term patient have an obligation to apply early diagnosis and prompt and comprehensive treatment of the whole patient to prevent or postpone deteriorations and complications which may produce or aggravate disability.

3. Adequate care of the long-term patient requires arrangements which promote frequent evaluation of patient needs and easy flow back and forth among home, hospital, and related institutions.

4. The cost of programs to provide care to long-term patients should be measured first in terms of human values, of effectiveness, and of productivity. The most economical care is that which returns a person as quickly and as fully as possible to the highest attainable state of health and social effectiveness. Practices in conflict with this conclusion must be eradicated and procedures consistent with it substituted.

5. With full appreciation of the necessity for adequate institutional facilities, and realizing that some areas do not have such accommodations and should provide them, the Commission nevertheless feels that henceforth communities generally should place the greater emphasis on planning for care in and around the home.

6. Rehabilitation is an innate element of adequate care and properly begins with diagnosis. It is applicable alike to persons who may become employable and to those whose only realistic hope may be a higher level of self-care. Not only must formal rehabilitation services be supplied as needed, but programs, institutions, and personnel must be aggressively rehabilitation-minded.

7. Hospitals, outpatient departments, health departments, nursing organizations, and others furnishing the specialized services required by the long-term patient should reexamine their policies and practices to assure the long-term patient the best of modern medical care. This reorganization should be in the direction of strengthening the personal relationship of physician and patient, bringing the doctor aid and not attempting to substitute the agency for the personal physician.

8. Coordination and integration of services and facilities are so valuable in promoting good care for the chronically ill that all who are concerned with the long-term patient have an obligation to support and further arrangements to this end.

9. No pattern for organizing services is satisfactory for all communities. Programs of necessity must be tailored to fit local situations taking full account of what is good in existing resources for care at home or in an institution. Planning should be based on facts—both local and regional—as to needs, density of population, financial capacity, and types of illnesses and accidents likely to prevail.

10. Planning and programs must be directed to the needs of all long-term patients and not limited to those of any special economic, racial, cultural, or other segment of the population. Planning for all long-term patients must, however, take into account the services now available to special groups such as veteran, fraternal, and others.

11. A significant but unknown number of the 5.3 million persons estimated to be long-term patients are exservicemen and women. Of the total service to long-term patients, a considerable proportion is provided by the Veterans Administration. Congress is urged to take necessary action to clarify fully the federal responsibility to veterans who are long-term patients, and in doing so to be mindful of the community need for integrating programs for care of all long-term patients.

12. Personnel shortages in the professions concerned with the chronically ill remain so serious as to constitute a major block to improvement of care. The number of personnel must be increased by better recruitment, assistance with costs of education, better salaries, and other inducements to enter and remain in practice. This is particularly applicable to the classes of personnel associated with physicians in patient care.

In addition, changes in curricula for undergraduate, graduate, and postgraduate education are needed to produce personnel interested in and equipped to care for long-term patients.

13. The Commission on Chronic Illness recognizes that the mental illness problem permeates the entire field of care of the long-term patient. An over-all attack on all aspects of the problem is long overdue. The Commission commends the Council of State Governments for its comprehensive 1950 recommendations concerning state mental health programs [3] and the Governors for the vigor with which they have undertaken to turn the recommendations into action.[4] States are urged to continue and accelerate these efforts. The Commission believes that there is great need for continued emphasis on the development of comprehensive community-wide preventive programs in the mental health field. [[3] "The Mental Health Programs of the Forty-Eight States." The Council of State Governments, Chicago, Illinois. 1950. [4] Governors' Conference on Mental Health. State Government, March 1954.]

The Patient at Home

1. Most long-term patients can best be cared for at home during much of their illness and prefer care in that setting under supervision of their personal physician. In spite of this, community planning continues to under emphasize such care. Comparatively little effort has been made to organize and provide the means whereby physicians can obtain for their patients the variety of services required to meet the diversified and complex needs that arise in long-term illness.

2. It is imperative that the patient's personal physician participate as continuously as possible in the medical care of each patient at all stages of illness. The physician determines the nature, time, and place for the patient's diagnostic work-up and therapeutic services. The physicians, therefore, must equip themselves with knowledge of new methods of treating long-term illness; learn to use other health professions in care of the patient; and become familiar with community resources that offer the various services the patient may require.

3. In addition to physeian services, long-term care for many patients—though by no means all—requires nursing, dental, social work, nutrition, homemaker, housekeeper, occupational

therapy, physical therapy, and other rehabilitative services. In most communities these services, except nursing, are not yet available for the patient in his home. Communities are urged to make these services available and to develop methods to acquaint professional groups and the general public with them.

4. Planning to improve care of the long-term patient at home should be part of a community's general health care program. Such planning must take into account the fact that for some patients care at home may precede, follow, or be interspersed by care in a hospital or other institution.

5. Adequate housing is a fundamental requirement for the care of patients with long-term illness or disability. Community planning for such care must therefore take cognizance of housing needs.

6. The role of the outpatient department in meeting the needs of the chronically ill requires clarification. In most instances a general reorganization of these departments is required to provide the continuity which is so important in the care of the long-term patient. This applies both to departments where the clinic physician temporarily stands in the role of personal physician and those that stand in the role of consultant furnishing special diagnostic and treatment services to amplify the medical care given by the patient's doctor.

The outpatient department must (a) provide services in ways that preserve the dignity and respect the convenience and comfort of the person and which will encourage him to retain a large measure of responsibility for his own health; (b) keep alive the doctor's interest in his patient, and the patient's respect and confidence in his physician; and (c) eliminate fragmentation of patient care into small specialty interests, thus lessening confusion to the patient, the physician, and the entire clinic staff.

Too few outpatient departments have as yet realized the opportunity to provide diagnostic and specialist treatment services need by practicing physicians for management of selected patients.

7. Home care programs organized to provide auxiliary services to the private physician offer the most effective method yet devised for bringing to long-term patients and their families the coordinated services required. Up to now they have usually been limited to only a few physicians in a community and for their needy patients. The *experience* of these programs should be utilized to devise ways to bring integrated auxiliary services to any physician for persons in all economic groups. To be successful, an organized home care program must have these essential characteristics: centralized responsibility for administration; coordination of services and resources; and the development and use of the patient care team to deal with the health needs of the patient.

The Patient in an Institution

ALL INSTITUTIONS CARING FOR LONG-TERM PATIENTS

1. If the long-term patient cannot be satisfactorily treated while residing in his own home, he should be transferred to an institution that affords him the kind of services most appropriate to his current needs. He should not be maintained in a high-cost facility when a less expensive one is available to serve his needs as well or better.

2. A wide range of institutional services is needed. Under current practices these are provided in varying amounts and patterns by the following types of institutions: general, chronic disease, mental and tuberculosis hospitals, special rehabilitation institutions, nursing and convalescent homes and homes for the aged. Many communities cannot afford and are not justified in maintaining all of the personnel and physical facilities involved. For them, the Commission recommends: (a) a drastic rearrangement of functions and relationships of existing institutions; (b) procurement of some needed services on a regional basis; (c) a combination of these procedures.

3. It is incumbent upon all institutions—individually and as a group within the community—to see that their policies and practices regarding long-term patients are carefully framed and meticulously carried out in the interest of the patient. The standards of care for this group must be brought up to that of care given to persons with acute illness. Among the most important areas needing attention are these:

a. *Medical supervision.* Every institution has a responsibility to insure that all patients have adequate medical supervision, including proper examination at admission and periodic reevaluation. Policies and practices should not preclude maintenance of the patient's personal physician's role in the patient's care.

b. *Admission and discharge policies.* A hospital should not exclude capriciously or arbitrarily because of diagnosis (terminal cancer, paraplegia, poliomyelitis, tuberculosis, psychosis, etc.) patients who can benefit from the care it offers. However, no institution should admit patients whose essential care requirements it is not prepared to meet. A hospital which cannot meet the requirements of a patient seeking admission should offer assistance to that patient in finding a suitable source of care. No institution should discharge patients in the absence of a care plan designed to permit the patient to maintain his gains and escape exacerbations.

c. *Professional and administrative arrangements among institutions.* These should be such as to facilitate easy transfer of patients from one to another in accordance with patient needs; and should encourage the greatest possible continuity of care. Cooperative arrangements should extend to community health activities involved in providing care at home.

4. Additional acceptable beds are needed especially for long-term patients who have achieved the fullest benefit from active medical treatment but still need skilled nursing care in an institutional setting.

HOSPITALS

5. The *most desirable* approach to providing hospital care to long-term patients is through extension, organization, and coordination of the facilities and services of general hospitals both private and public. In some general hospitals this will require only an extension of the hospital's responsibility and reorientation of the staff so that diagnostic and therapeutic services—disproportionately dedicated to acute illness—will be appropriately and adequately applied to the chronically ill. In many other hospitals additional beds will be needed and personnel, space, and equipment required to provide specialized services to the long-term patient. In all general hospitals the concept, philosophy, and practice of rehabilitation must be paramount.

a. *Short-term care of the chronically ill in a general hospital.* All general hospitals should devote an appropriate share of their services to long-term patients. The general hospital—of whatever size—which cannot accept responsibility for both short-term and long-term care, should extend to the patient with a chronic disease these services which are likely to be short-term: services for diagnosis and treatment of intercurrent acute illness; evaluation of the need for services not provided by the general hospital, or better or more economically provided in other types of institutions; and the development of a plan for continued care. The trend of extending psychiatric services in general hospitals, for treatment as well as diagnosis, should be encouraged.

b. *Long-term care in a general hospital.* General hospitals should provide adequate units and services for patients requiring prolonged periods of care.

The large general hospital is urged to equip itself with the full range of facilities, both for the patients needing skilled nursing service and rehabilitation, and units for those needing less skilled care. A chronic disease unit offering primarily skilled nursing service and physical medicine is recommended for the large general hospitals.

The small general hospital that cannot provide, through its own resources, the full scale of services is urged to make arrangements on a regional basis for services to be available at the small hospital.

6. The *independent* chronic disease hospital is a second choice approach to long-term hospital care. It should be considered only when there is no practical way to associate the chronic disease facility physically and administratively with the general hospital. Where a special chronic disease hospital is unable to affiliate itself with a general hospital, it must have adequate facilities and personnel for thorough diagnostic work-up, intensive study of the patient, and a dynamic program for definitive medical care and rehabilitation. The construction of new independent chronic disease hospitals (except research institutions) is not recommended.

7. Progress in control of a number of the more serious chronic diseases depends upon research which can be conducted best where substantial numbers of patients can be observed over a long period of time. Chronic disease hospitals and chronic disease units of general hospitals have a unique opportunity to conduct such investigations and should include research among their principal functions.

8. The long-term patient belongs in private general hospitals as well as in tax-supported general hospitals—a combination of voluntary and public effort is applicable to the care of the long-term patient as it is to the care of the acutely ill patient.

MENTAL INSTITUTIONS

9. Every state should survey periodically its mental institutions and plan systematically for improving its services and facilities.

10. The hospitalized mentally ill constitute a major chronic disease problem for the nation and merit a comprehensive research effort.

11. Every mental hospital should have an adequate therapeutic program, the primary goal of which is rehabilitation of the patient and prompt restoration to community life as soon as the need for social restraint is over. A second goal is to improve the lot of the patient who has to remain in the hospital for a prolonged period.

Restoration to community life which is the aim of rehabilitation in the mental hospital demands a close integration with the community resources available to the patient.

12. Not all mental patients needing institutional care require care in a special mental institution. For many of these patients the general hospital offering psychiatric services represents the appropriate source of care.

13. Long-term mental patients, both those who present merely the mild confusions so often found among the elderly, and the patient whose psychosis has burned itself out, can be adequately cared for in a carefully selected custodial setting in public or private nursing homes. The stigma attached to the commitment to mental hospitals can be avoided. Experiments are under way to determine how best to care for these inactive or subclinical mental patients.

NURSING HOMES AND RELATED INSTITUTIONS

14. Nursing homes and related institutions are essential for some phases of long-term illness. They are presently being operated under a variety of auspices—public; proprietary; and nonprofit voluntary such as religious and fraternal and in some instances hospital. Though there are many that are rendering excellent service, too many are operating unsatisfactorily.

Simultaneously and concurrently many of these institutions must yet equip themselves to provide safe and adequate care and become properly aligned with other community resources serving the chronically ill. Only when this is accomplished can they fulfill their role acceptably and solve the problem of many long-term patients who otherwise must resort to inappropriate—and probably more expensive—care.

Individual physicians, medical societies, and hospital staffs particularly are urged to recognize the nature of the contribution which care in nursing and convalescent homes and homes for the aged can make and to help bring about the necessary reforms.

15. On the basis of its studies and analysis of the problems, the Commission believes that development of these institutions as elements of general hospitals is one of the best ways of raising standards, and recommends this arrangement. When outright affiliation is impossible, a close and active working relationship should be maintained.

16. Standards of medical, nursing, and personal care in many of these institutions are not acceptable and must be raised. Two major factors are involved: (a) knowledge of what to do and how to do it; (b) better financing.

a. *Knowledge of what to do and how to do it.* The Commission on Chronic Illness endorses and commends the nursing home standards recommended by the National Social Welfare Assembly's Committee on Aging in 1953, and the suggested procedures for establishing and maintaining them.[5] [5 Standards of Care for Older People in Institutions: Section I, Suggested Standards for Homes for the Aged and Nursing Homes; Section II, Methods of Establishing and Maintaining Standards in Homes for the Aged and Nursing Homes; Section III, Bridging the Gap Between Existing Practices and Desirable Goals in Homes for the Aged and Nursing Homes. Published by the National Committee on Aging of the National Social Welfare Assembly under a grant from the Frederick and Amelia Schlmper Foundation, 1953, 1954.]

Through educational programs and proper exercise of their jurisdiction, licensing and standard-setting authorities can effect great improvements in physical facilities and care in nursing homes and related institutions. Recent legislation[6] and the knowledge resulting from recent studies of patients and institutions have produced an unprecedented opportunity for progress in this field. Licensing and standard-setting authorities are urged to move vigorously to take advantage of this auspicious situation. [6 1954 Amendments to Hospital Survey and Construction Act (Public Law No. 482, 83rd Congress) and 1950 Amendments to Social Security Act (Public Law No. 734, 81st Congress) relating to licensing and standard-setting in nursing homes.]

b. *Better financing.* Financing is probably the most neglected and unresolved area in improving care in the bulk of nonhospital institutions. The efforts of licensing authorities and nursing home operators to apply new knowledge and otherwise raise standards can succeed only if better financial support is forthcoming for these institutions, particularly the ones that are financed largely through public assistance. To provide a sounder financial basis for nonhospital institutions and the improvement of their standards, the Commission recommends that:

Private insurance and prepaid medical and hospital plans extend the scope of benefits offered to include this type of service.

Philanthropic agencies—national voluntary organizations devoted to specific disease categories, community chests, united funds, religious and fraternal groups, for example—consider this type of service as a need that deserves support commensurate with other types of care.

Responsible authorities make sufficient funds available to enable public agencies operating such facilities or purchasing this type of care to expend sufficient amounts to assure the quality of care required.

Tax funds be sufficient to support a program of inspection, licensing, education, and supervision.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Relationship Between Sudden Changes in Weather and the Occurrence of Acute Myocardial Infarction. H. C. Teng and H. E. Heyer. Am. Heart J. **49**:9-20 (Jan.) 1955 [St. Louis].

An analysis of the relationship between sudden changes in weather and the onset of acute myocardial infarction was made in 1,015 men and 371 women with acute myocardial infarction who were admitted to three hospitals in Dallas, Texas, between 1946 and 1951. The climate of Dallas is characterized by quite hot summers, rather mild winters, and the frequent occurrence of sudden changes in temperature and humidity. The average daily admission rate of patients with acute myocardial infarction was 0.49 during stable meteorologic conditions, 0.65 during sudden onset of warm weather, and 1.01 during sudden onset of cold weather. Thus, an increased frequency of occurrence of acute myocardial infarction was noted during periods of sudden inflows of tropical and of polar air masses. It appears from the authors' study that sudden meteorologic changes exert an adverse effect on patients with coronary artery disease.

The Use of Antibiotics for the Prevention of Rheumatic Fever. G. H. Stollerman. Am. J. Med. **17**:757-767 (Dec.) 1954 [New York].

Stollerman suggests two approaches to the prevention of rheumatic fever by antibiotics. The first is protection of the highly susceptible rheumatic patient from repeated attacks of the disease by maintaining continuous chemoprophylaxis against new streptococcic infection after recovery from an initial bout of rheumatic fever. Three methods have been applied extensively for this purpose. Data on sulfonamide prophylaxis indicate that it reduces the incidence of recurrences of rheumatic fever by at least 85%. In addition to proved effectiveness, sulfadiazine has the advantages of being easy to administer, relatively inexpensive, and of low toxicity. The dose of the drug recommended is 1 gm. daily, given either as a single dose or in divided doses of 0.5 gm. twice daily. Since sulfonamides are bacteriostatic rather than bactericidal, their action is suppressive only; they do not eradicate the streptococcic carrier state. Sulfonamides are useful, therefore, primarily in preventing new streptococcic infection after streptococci have been eradicated by other means. The striking effectiveness of penicillin against group A streptococci and the limitations of sulfonamide prophylaxis have encouraged many recent studies of penicillin prophylaxis of rheumatic fever. Although single daily oral doses of 50,000 units to 100,000 units proved effective in preventing streptococcic infections, such small doses are not adequate to treat the infected patient and do not eradicate the carrier state. Temporarily, it might be safer to use daily doses of at least 200,000 to 300,000 units to protect the highly susceptible juvenile rheumatic patient from recurrences of rheumatic fever. The disadvantages of orally given penicillin therapy are frequent breaks in routine, irregular absorption, and the fact that the minimum effective dose has not been well established. Benzathine penicillin G, a new repository penicillin compound, was administered intramuscularly in doses of 1,200,000 units every four weeks to 145 outpatients recently recovered from rheumatic fever. During a 21 months' period no rheumatic recurrences were observed in this group. Similar results were obtained in a study of 96 patients with rheumatic fever who received 1,200,000 units of benzathine penicillin monthly during a period of 14 months; no recurrences were observed. The administration of single monthly injections of this drug as continuous prophylaxis for rheumatic patients has the advantages of reliability and relative economy, and, though moderate soreness may occur at the site of the injection, such therapy appears so far to be safe. Other antibiotics such as chlortetracycline (Aureomycin), oxytetracycline (Terramycin), or tetracycline (Achromycin) offer no significant advantages in the prevention of rheumatic recurrences and should be reserved for patients intolerant of penicillin or sulfonamides. The second approach to the prevention of rheumatic fever by the use of antibiotics is prompt and adequate treatment of streptococcic pharyngitis in the general population to reduce the incidence of the first attacks of rheumatic fever. Optimum results were obtained when treatment with penicillin was initiated within 48 hours of the onset of symptoms of sore throat. If penicillin is administered orally, a minimum daily dose of 500,000 units must be given for 10 days. If penicillin is administered parenterally, daily injections of 300,000 units of procaine penicillin for 10 days, 600,000 units of procaine penicillin in oil with 2% aluminum monostearate given every other day for three or four doses, or one injection of 600,000 to 1,200,000 units of benzathine penicillin proved highly effective.

Small Doses of Cortisone Combined with Salicylates and Antibiotics in Acute Rheumatic Fever. M. Poli, E. Destefanis and G. Conterno. Minerva med. **45**:1229-1238 (Nov. 17) 1954 (In Italian) [Turin, Italy].

The administration of small doses of cortisone combined with that of salicylates and antibiotics cured a 15-year-old boy in whom typical acute rheumatic fever was present. The recovery was characterized by a quick decrease of the erythrocyte sedimentation rate, abatement of fever in 48 hours, remission of the joint pain in three days, and disappearance of the exudate in four days. Lymphocytosis and eosinophilia, which accompany the process of recovery from infectious diseases, were also observed. The daily dosage of the drugs was: cortisone, 25 mg.; Salicilamide (o-hydroxybenzamide and sodium *p*-aminobenzoate), 6 gm.; and Combicillina, 1 vial. The latter consisted of 200,000 units of penicillin, 0.1 gm. of streptomycin, and 0.21 gm. of Emilene (4-homosulfanilamide) hydrochloride. Vitamin K was also given because it is believed that the salicylates cause hypoprothrombinemia. No signs of cardiovascular insufficiency or myocarditis and endocarditis were noticed during the treatment. The authors feel that the rapid regression of the disease was not caused by the salicylates alone but that cortisone definitely exerted an antirheumatic action. Secondary effects (hemophilia or renal impairment) did not occur. The combined administration of cortisone and salicylates to patients with acute rheumatic fever seems justified in view of the facts that (1) the eventual secondary effects, especially in young patients, of cortisone therapy are diminished; (2) the antirheumatic action may be potentiated; and (3) the smallest dose of cortisone that is effective against the disease can be determined. Because salicylates do not prevent eventual recurrences of the symptoms, the concurrent administration of antibiotics is justified as a prophylactic means against relapses in view of the fact that streptococci of the A group seem to have great importance in the causation of rheumatic fever. The antibiotics may also help prevent the heart lesions that are secondary to acute rheumatic fever.

Cortisone and Salicylates in Rheumatic Fever. K. S. Holt, R. S. Illingworth, J. Lorber and J. Rendle-Short. Lancet **2**:1144-1148 (Dec. 4) 1954 [London, England].

Holt and associates describe a controlled investigation of three therapeutic methods in acute rheumatic fever. Their aim was to determine whether salicylates are more effective in

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The place of publication of the periodicals appears in brackets preceding each abstract.

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large doses than in small ones, and to compare the effect of salicylates given alone, and salicylates, in large dosage, given with cortisone. They expected to reach no definite conclusion for at least five years, but the early results obtained by combined use of cortisone and salicylates in high dosage seemed so unusual that the authors have published a preliminary account. The method of treatment was decided by random sampling, after rigid diagnostic criteria had been satisfied. Ten children received cortisone with salicylates in large dosage, 10 received salicylates in large dosage without cortisone, and 10 others received salicylates alone in low dosage. The erythrocyte sedimentation rate fell more quickly in the children treated with cortisone and salicylates than in the other two groups. With the combined treatment the average number of days before the erythrocyte sedimentation rate first reached normal was 17 days, compared with 39.2 days in children receiving salicylates in high dosage and 50.3 days in those receiving salicylates in low dosage. The average duration of treatment in groups 1, 2, and 3 was 34, 79.6, and 67.4 days respectively. The authors emphasize that in all the patients receiving the combined treatment there was a satisfactory and prompt clinical improvement, with a rapid fall of temperature and clearing of the arthritis and signs and symptoms other than cardiac murmurs. All the patients were symptom-free when treatment was discontinued. The more rapid fall in the erythrocyte sedimentation rate after the combined treatment was not merely the result of chemical action on the blood, for it remained lower after the combined treatment was discontinued. While it may be argued that the rapid fall in the erythrocyte sedimentation rate is of no particular importance, its rise is regarded as one of the best signs of rheumatic activity, and it seems reasonable to suggest that the degree of cardiac damage might perhaps be reduced if the duration of rheumatic activity can be shortened. The authors do not wish to give the impression that the combined treatment is easy to give or that it is a cure for rheumatic fever. Not only did toxic complications occur, but difficulties were experienced in achieving high salicylate levels.

Tuberculous Pericarditis: The Effect of Streptomycin. J. H. Schaeffer. Dis. Chest **26:**634-639 (Dec.) 1954 [Chicago].

Thirteen male patients between the ages of 14 and 62 years with tuberculous pericarditis with effusion were treated with streptomycin. Acid-fast bacilli were obtained from the pericardial fluid in only two patients. The diagnosis was based on strong presumptive evidence in the remaining 11 patients. Nine of the 13 patients had pulmonary tuberculosis, 2 had tuberculosilicosis, and one had miliary tuberculosis. One patient received streptomycin for only one month and three for only two months, while the more recently treated patients received longer courses of treatment, with at least two years continuous treatment contemplated. Four patients died within two years of the onset of pericarditis, while the other 9 are living 13 months to almost six years after the onset of the disease. Clinical evidence of constrictive pericarditis developed in two of the patients who died; two of the living patients have definitive signs of constrictive pericarditis. When constrictive pericarditis was evident, cardiac failure occurred early in the course of the disease, soon after absorption of fluid. Those who were asymptomatic after one year continued to have no cardiac difficulty. Comparison with other reports in the literature suggests that the prognosis is improved, as streptomycin therapy shortens the course of the acute disease, decreases the number of deaths from other forms of tuberculosis, and may lessen the incidence of constrictive pericarditis. Variation in the severity of the disease makes it difficult to evaluate the mortality rate and prognosis and makes comparison with previously published cases unreliable.

Treatment of Hyperthyroidism with Radioactive Iodine (I^{131}). R. Fauvert and S. Nicollo. Semaine hôp. Paris. **30:**4236-4241 (Dec. 2) 1954 (In French) [Paris, France].

Fifty-nine patients with hyperthyroidism are reported on; all were treated with radioactive iodine, with good results in 56. The authors followed the general rule of not treating any patient under 40 years of age; there were some exceptions to this, such as patients whose disease did not yield to medical treatment and who refused surgical intervention. Patients with nodular goiter were not given I^{131}. In the 56 patients whose treatment was successful, hypermetabolism was always reduced, while goiter, exophthalmos, and tremor were more or less controlled. Basal metabolism became normal and cholesterolemia was increased. The principal side-effects were slight transitory signs of hypothyroidism that were easily controlled.

Influence of Bacterial Flora of Stomach on Absorption of Orally Administered Vitamin B_{12}. W. Franz and I. Pendl. Klin. Wchnschr. **32:**1092-1096 (Dec. 1) 1954 (In German) [Berlin, Germany].

Franz and Pendl say that earlier they had made bacteriological studies on over 900 specimens of gastric juice, including 110 specimens of 60 patients with pernicious anemia. In 3 of the 60 patients with pernicious anemia the authors were at first unable to culture colon bacilli from the gastric juice. These patients had severe anemia; they had not been treated with liver extract or vitamin B_{12}. They had, however, not only a moderate increase in reticulocytes but also changes in the bone marrow suggesting the onset of a spontaneous remission. The gastric juice of all three patients contained no protein capable of binding vitamin B_{12} ("intrinsic factor") and neither did it contain bound vitamin B_{12}. Two of these patients were given small doses (5, 10, and 30 mcg.) of vitamin B_{12} orally. The condition of one of these two did not improve as the result of the oral vitamin B_{12} medication, and it was found that during treatment her gastric juice contained paracolon bacilli, which completely consumed or destroyed vitamin B_{12} (added in vitro). In the second patient complete remission of the pernicious anemia resulted under oral administration of vitamin B_{12}, but this treatment had to be continued for 98 days. This patient had paracolon bacilli in his gastric juice only for a short time after a diarrheal disorder, and in vitro tests with these bacilli revealed that they consumed or destroyed only 80% of the added vitamin B_{12}. Colon bacilli, found later in the gastric juice of the third of the three patients, were found to destroy 50% of added vitamin B_{12}. The authors feel that their observations indicate that vitamin B_{12} taken in with the food or administered in small doses orally can be absorbed even if a vitamin B_{12}–binding protein (intrinsic factor) is absent, provided the stomach does not contain varieties of colon bacilli that consume or destroy vitamin B_{12}. Recently the authors have been able to favorably influence pernicious anemia in another patient by oral administration of small doses of vitamin B_{12}. This patient likewise had no colon bacilli in his gastric juice.

Treatment of Chronic Leukosis with Radiophosphorus (P^{32}): Study of 75 Cases. J. Mallarmé, R. Fauvert and S. Nicollo. Semaine hôp. Paris **30:**4241-4248 (Dec. 2) 1954 (In French) [Paris, France].

The present series of patients with chronic leukosis numbers 75: 32 with myeloid leukosis, 40 with the lymphoid form, and 3 with the monocytic form. These patients were treated with radioactive phosphorus at some point in their disease by the authors and followed up for periods of months or years. Many had had various kinds of therapy before. In general, they were treated on an outpatient basis, the drug being given intravenously. The best form of dosage was found to be one maintained in a continuous plateau, i. e., an initial dose of from 2 to 5 mc. supplemented by injections given every five days of amounts of P^{32} determined specially for the individual case. In a few instances, doses were spaced 10 or 15 days apart. It is emphasized that radiophosphorus is less effective in the terminal stages of leukosis than in the period when diagnosis has first been made. It is not to be used in the terminal, "blastic" stage, regardless of the cytological type, or it can be used in tiny amounts and in association with blood transfusions and cortisone administration. Radiophosphorus is the best treatment of simple lymphoid leukoses, whether leukemic or subleukemic; it is as effective in cases of long standing as in recent ses, provided the older cases are still radiosensitive. Thi herapy is superior to roentgen ray irradiation: it is simpler, more rapid, and better tolerated, and yields better immediate effects and longer remissions. Radiophosphorus is also one of the best treatments for myeloid leukoses. Its effects are comparable to those of roentgen therapy of the spleen, but the treatment does not

last so long and is better tolerated and the remissions obtained are usually longer. Treatment should be intermittent, with as long intervals as possible; chemotherapy may be alternated with the administration of radioactive phosphorus for better results. Undesirable side-effects from radiophosphorus therapy, which are the same as those of unsuitable roentgen irradiation, can be prevented by careful surveillance of the patient before and after treatment. Patients in whom serious accidents have occurred can be treated by transfusion and cortisone therapy. Irreducible toxic effects are seen only in the terminal stage of the disease.

Studies on Serpasil, an Alkaloid of Rauwolfia Serpentina: I. Clinical Observations on the Hypotensive Effect. S. Bardelli and S. Citi. Sett. med. **42**:483-489 (Sept. 15) 1954 (In Italian) [Florence, Italy].

Serpasil had a good hypotensive effect in 16 of 25 patients with hypertension who received the drug orally in daily doses of from 1 to 2 mg. for from 10 days to three months. The good effect appeared, as a rule, after two or three days of therapy. Tolerance to the drug was good, the only side-effect being a mild diarrhea in three patients. Serpasil had no effect whatsoever in three patients and only slight effects in six. It is a good therapeutic agent for arterial hypertension because (1) it is easy to administer; (2) it is not accompanied by side-effects; diarrhea, the most frequent, can be controlled by lowering the dosage; (3) it has a definite hypotensive effect in a good percentage of patients and often restores the pressure values to normal; (4) it benefits the subjective symptoms of the patients, even of those whose arterial pressure is not influenced; and (5) sometimes its good effects last for some days after the therapy is discontinued.

Blood Pressure Reduction in Arterial Hypertension by Hexamethonium and Pentapyrrolidinium Salts. F. H. Smirk. Am. J. Med. **17**:839-850 (Dec.) 1954 [New York].

With methonium salts, it is necessary to produce a blood pressure fall of sufficient degree in order to produce a fall of sufficient duration. The effect of pentolinium (pentapyrrolidinium) on the circulation appears to be identical with that of hexamethonium, but the dose is smaller and the duration of action longer with pentolinium. The adjustment of doses should be interms of tests lasting several hours or all day, in which the blood pressure is measured at half-hour intervals. The object is to determine the lowest level to which the blood pressure falls with the patient in the standing position. If hypotensive symptoms occur, they will be maximal at this time. The aim of treatment is so to regulate the dosage that the blood pressure at the trough of the blood pressure fall is in the region of 120/85 mm. Hg. The degree of control over blood pressure levels is far more satisfactory when it has been adjusted in terms of hypotensive symptoms occurring in the erect posture than when attempts are made to regulate the dose in terms of casual blood pressure measurements. The initial doses, dosage increments, and highest final daily doses for oral and subcutaneous administration of pentolinium tartrate, hexamethonium bromide, hexamethonium chloride, and hexamethonium bitartrate are presented in a table. It was found that a small set dose of reserpine (the pure alkaloid derived from Rauwolfia serpentina), 0.5 mg. twice or three times daily, enhances the response to pentolinium so that smaller doses are effective. In 60 of 80 patients who had been treated previously by oral administration of pentolinium alone, the combined treatment with pentolinium and reserpine was better either in respect of control over the blood pressure level or in freedom from side-effects. This combined treatment seems to be a better means of controlling the blood pressure level in severe hypertension than any other with which the author had experience.

Action of Reserpine in Chronic Malignant Hypertension. C. Bussolati. Gazz. med. ital. **113**:318-320 (Oct.) 1954 (In Italian) [Milan, Italy].

Bussolati reports the results obtained with reserpine in 15 patients with chronic malignant hypertension, in 14 of whom the systolic pressure was above 200 mm. Hg. Clinical and electrocardiographic findings revealed that seven of the patients had diabetes and seven a myocardial impairment. Reserpine treatment was started 10 days after the previous administration of hypotensive drugs was discontinued. It was continued for eight weeks. When the drug was given orally in doses of 1.5 mg. daily, it was tolerated well by 13 patients. One tolerated well a daily dose of 2 mg. Reserpine had a good hypotensive effect during the time it was administered; the initial average value of 225/116 decreased after seven days to 211/103 and after five weeks to 199/95 mm. Hg. But when the dose of reserpine was diminished, the arterial pressure increased again and 12 to 15 days after the treatment was discontinued it had already returned to the initial values. Three patients who were given the drug again responded well to it, but there was again a return to the blood pressure initial values when the treatment was discontinued. The drug decreased the heart rate and restored it to normal in the patients with tachycardia, but it did not cause bradycardia in those with normal heart rate. The general condition of the patients was improved. The fact that one 0.5 mg. tablet of the drug given every 12 hours had the same hypotensive effect as one 0.5 mg. tablet given every 8 hours suggests that the capacity of absorption, or the sensitivity to the drug, or the resistance of the sympathetic centers to its effect varied from patient to patient.

Treatment of Hypertension. O. Selvaag and E. Gleditsch. Tidsskr. norske lægefor. **74**:745-749 (Dec. 1) 1954 (In Norwegian) [Oslo, Norway].

In the treatment of acute hypertension and hypertensive crises (such as eclampsia, pregnancy toxicosis, and pseudouremia) and in rapidly progressive malignant hypertension, the rapidly acting ganglion-blocking agents (hexamethonium and pentolinium) are most effective. These agents should be avoided in angina pectoris and used with care in renal insufficiency. After sympathectomy hydralazine (Apresoline) is apparently most useful. In the authors' cases hydralazine in part provoked, in part aggravated cardiac insufficiency and caused angina pectoris. It should not be used when cardiac symptoms are present. Veratrum derivatives are more suitable in cardiac affections, including heart insufficiency. The Rauwolfia preparations seem to be the easiest to administer, to give the fewest side-effects, and, as far as known, to have no special contraindications. They are the best agents for practical application and should at present form the basis for the medicinal treatment of hypertension. If they do not give satisfactory results alone, the effect can be supplemented by one or more of the other substances. Sympathectomy alone has in part been disappointing, perhaps because it has been reserved for cases too advanced. It will probably still be considered in a number of cases of malignant hypertension, partly because of the good effect of medicinal treatment following the operation.

Hexamethonium in Peripheral Vascular Disease. G. Gibertini and R. Vecchiati. Minerva chir. **9**:936-943 (Oct. 31) 1954 (In Italian) [Turin, Italy].

The effects of hexamethonium were studied in patients with peripheral vascular disease. The drug was given by the intravenous or the intra-arterial route to six patients with thromboangiitis and nine with senile arteriosclerosis who were kept in the supine position during and for about two hours after the administration of the drug. The drug brought about a sensation of hyperthermia that was felt by the patients in the legs and even more in the feet. The hyperthermia increased gradually 2 to 10 minutes after the administration of the drug and was still high 60 to 90 minutes later. It varied in intensity and duration, depending on the circulatory condition of the patient. The skin temperature increased from 10 to 12 C in the toes, whereas it remained unchanged or decreased slightly in the face and body. The cramp-like pain was attenuated. These results indicate that the administration of hexamethonium is followed by a peripheral vasodilatation that is more intense in the toes because of the dilatation of the precapillary arterioles and the capillaries. There follows an increase exchange between blood and tissues and consequently an increase in the cell respiration. These effects seem more marked and longer lasting than those provided by the various hyperemia-inducing agents that have been used in patients with peripheral vascular disease. Hexamethonium was

tolerated well and its side-effects were mild. The only precaution that must be taken is to keep the patient in the supine position during and for some time after the administration of the drug to prevent the effects of orthostatic hypotension. Prolonged hexamethonium treatment potentiated gradually the initial effects and gave satisfactory results. The best results in this series were obtained in the younger patients. However, even those with senile arteriosclerosis were benefited; the gangrenous process present in some was arrested and the trophism in the healthy areas was improved. Only in patients with initial or functional disorders of the lower extremities can good results be obtained. In those with forms of long standing and with anatomic alterations the results are only transitory and they depend on the continued administration of the drug.

Carcinoma of Liver. B. Sepúlveda, A. Rivera and E. Rojas. Rev. invest. clín. **6**:283-314 (July-Sept.) 1954 (In Spanish) [Mexico, D.F., Mexico].

During the period from 1947 to 1954, 830 autopsies followed by histopathological studies were made in the Hospital de Enfermedades de la Nutrición of Mexico City. More than one-third the number of autopsies were made on bodies of patients who died in the hospital's department for diseases of the liver. The average age of the patients was 50 years. Primary carcinoma of the liver was observed in confirmation of a clinical diagnosis in nine cases. Secondary carcinoma of the liver was an autopsy finding in 15 out of 81 cases with secondary cancer of the structure. Primary carcinoma of the liver is a rare condition. The tumor can be of a nodular, massive, or diffuse macroscopic aspect or else a cystoadenocarcinoma. The histological types are: (1) hepatocellular, (2) cholangiocellular, and (3) mixed. The main causal factors are heredity and a previous cirrhosis. The symptoms are those of cancer of the liver alone or in association with those of cirrhosis. The metastases are given first to the liver itself and then to the regional lymph nodes and other structures. The only effective treatment consists in the surgical removal of the tumor, which is feasible only in extremely rare cases. Secondary carcinoma of the liver is nine times as frequent as primary carcinoma of the structure. In one-third the number of cases of cancer in other structures, especially the stomach, the lungs, the colon, and the rectum, the liver shows metastases. The predominant symptoms of secondary cancer of the liver are local pain, nodular hepatomegaly without splenomegaly, rapid loss of weight, asthenia, and often, but not always, fever, jaundice, and malleolar edema. The tests for function of the liver are altered. The diagnosis of both primary and secondary carcinoma of the liver is made by biopsy of the liver with laparotomy. The prognosis of both primary and secondary carcinoma of the liver is fatal at short duration. The average span of life of the patients from starting of the symptoms to a fatal end is four months. Most of the patients die in hepatic coma because of the acute insufficiency of the liver. In the subjects of this report primary carcinoma was multiple nodular in eight cases and a cystoadenocarcinoma in one case. The histological type of the tumor was hepatocellular in five cases, cholangiocellular in two, and hepatocholangiolar in one. One tumor was a cystoadenocarcinoma. In the cases of secondary carcinoma of the liver the most frequent metastasizing organs were the stomach, the lungs, the rectum, the colon, the biliary tract, and the pancreas. In either primary or secondary carcinoma of the liver the course of the disease was typical of the given type of carcinoma.

Serological Reaction in Malignancies. W. F. Eisenstaedt. J. Nat. Cancer Inst. **15**:439-448 (Dec.) 1954 [Washington, D. C.].

On the assumption that a malignant tumor might produce an immunologic reaction in the human body, experiments have been undertaken for the past six years to develop a serologic test for malignant disease. Different organs (heart, liver, kidney, and spleen) from patients who had died from generalized carcinomatosis were used as "antigen." As controls, identical organs from patients who died from diseases other than malignant diseases were used. With the exception of the spleen, all experiments were unsuccessful. This communication deals with a simple flocculation test with the use of the alcoholic extract of spleens from persons whose death resulted from generalized carcinomatosis as "antigen." Eisenstaedt demonstrates that suitably prepared splenic extracts from patients with carcinomatosis when mixed with serums of patients with malignant growths will give rise to flocculation reactions. The results obtained in 6,500 persons indicate that the test, in its present early stage, falls short of the Dunn and Greenhouse requirements for a "cancer screening test," but Eisenstaedt feels that they are encouraging enough to consider the test a satisfactory preliminary step in the establishment of a "diagnostic cancer test."

Agammaglobulinemia: A Congenital Defect. N. H. Martin. Lancet **2**:1094-1095 (Nov. 27) 1954 [London, England].

In citing several earlier reports on patients whose serum contained no gamma globulin, Martin mentions two patients whose blood protein pattern greatly resembled that of the two smallest premature infants in whom he had analyzed the blood protein values. The first patient was a boy, aged 8, who had no antibody response to bacterial vaccine or to natural infection and who appeared to have no circulating gamma globulin. The second patient was an 11-week-old girl whose serum showed no gamma globulin. A prolonged generalized vaccinia had developed in this child, and the outstanding and perhaps fundamental lesion was the absence of circulating antibody. She died, despite treatment with massive doses of gamma globulin and immune serum. The serum protein pattern of four of the premature infants studied by Martin and of several other patients are recorded in a table. The analyses of the serums of the 11-week-old baby and of the premature infants were carried out on the same apparatus under identical conditions of protein concentration, buffer pattern, and current density, and are therefore technically strictly comparable. Reported cases indicate that absence of gamma globulin in the circulating serum is not regularly associated with increased susceptibility to infection. The reason for this may be that the principal deficiency in agammaglobulinemias is of the gamma$_2$ globulin, though some antibodies are almost certainly concentrated in the gamma$_1$ globulin. Analysis of four premature infants show an almost total absence of gamma globulin at or before the 26th week. It is suggested that agammaglobulinemia is due to the persistence of the early fetal pattern.

The Synthetic Analgesic Agent L-Hydroxy-N-Methylmorphinan in the Control of Pain Caused by Neoplastic Processes. C. Quaglia and L. G. Franco. Gazz. med. ital. **113**:297-301 (Oct.) 1954 (In Italian) [Milan, Italy].

Racemorphan (Dromoran) hydrobromide, the synthetic analgesic agent dl-3-hydroxy-N-methylmorphinan hydrobromide differs from morphine because it lacks an oxygen bridge, a double bond, and the alcoholic hydroxyl group. It provides an analgesic effect that is greater in intensity and duration than that following the administration of morphine. Side-effects, when present, are less marked. The authors used this new drug in an attempt to control the severe pain that was present in 52 patients with neoplasm who were admitted to the radiology department of the University of Turin for roentgen and radium therapy. Most of the patients had already undergone surgery; in the others the neoplasm was inoperable. Pain was so pronounced in all of them that analgesic agents had to be administered continuously. Racemorphan was given in doses that were individualized for each patient according to the intensity of the pain. As a rule, 2 mg. at the beginning of the night was sufficient; to some, however, two or more vials were given every 12 or 8 hours. The analgesic effect appeared generally 15 to 20 minutes later, lasting for from five to eight hours in patients with intense pain and longer in those who had pain only at night. Most of the patients tolerated the drug well; severe constipation, vesical tenesmus, and vertigo were never observed, and peristalsis of the intestinal loops was decreased only in three. The arterial pressure was not influenced, and on awakening the patients did not feel the sense of stupor and drowsiness that are common in patients who awake after having taken morphine. All experienced instead a sense of euphoria. Never did tolerance to racemorphan develop. It has not been established whether this feature is the result of the chemical composition of the drug or whether in this case it was due to the rather limited quantity that was administered. In any event, this feature, among others,

makes racemorphan superior to morphine, because tolerance is the main drawback to the use of morphine in the control of chronic severe pain. Racemorphan given to 16 patients who had been receiving morphine daily for some time was well tolerated. The analgesic effect was superior in duration and intensity to that provided by morphine.

Ambulation of Patients with Pulmonary Tuberculosis Under Protection of Chemotherapy: Preliminary Report. S. H. Dressler, E. M. Anthony, W. F. Russell and others. Am. Rev. Tuberc. **70:**1030-1041 (Dec.) 1954 [New York].

During the past 18 months Dressler and associates discontinued physical rest in the treatment of hospitalized patients with pulmonary tuberculosis who were receiving chemotherapy either in the form of isoniazid alone or combined with streptomycin. This report is concerned with 96 patients with advanced disease whose sputum was bacteriologically positive for tubercle bacilli and who had other evidence of active disease on admission to the National Jewish Hospital. Only those patients were included who had been receiving isoniazid or isoniazid and streptomycin for a continuous period of six months or longer and who were observed in the hospital for no less than six months. The 96 patients had moderately and far-advanced disease; their sputum was positive for tubercle bacilli on microscopy and culture at the time they first received isoniazid at this hospital. Fifty-eight of the 96 patients had been treated for tuberculosis before entering National Jewish Hospital either immediately prior to admission or at some time during former hospitalizations at other institutions. Fifty-three of these patients had received streptomycin and 38 had received isoniazid prior to admission. Limitations of physical activity prescribed for patients in this study were determined primarily by evidences of disease "toxicity," e. g., fever, elevation of pulse rate, anorexia, and malaise. The extent of physical activity was not determined either by anatomic extent of disease or by the presence or absence of tubercle bacilli in the sputum. On admission to the hospital, patients were permitted "physical activity 3," unless they were unable, either because of marked limitation of pulmonary function or because of toxic condition, to leave their beds. Physical activity 3 included bathroom and shower privileges, meals on tray at bedside, solarium privileges (games, writing), afternoon nap, passes (outside hospital) only for unusual events, movies, and other organized entertainments nearly every evening, and occupational therapy was initiated. After an average period of six weeks with "physical activity 3" patients were advanced to "physical activity 4," which, in addition to the activities given under point 3, provided for a half-hour walk every morning and every evening. Three weeks later "physical activity 5" was started, which added permission to take meals in the dining room and at least one outside pass per month, with participation in all patient social activities. After an additional six weeks "physical activity 6" was permitted, which provided outside rehabilitation activities (schooling, trade, or art) for those whose sputum was free from tubercle bacilli and specialized inhospital rehabilitation for those with sputum positive for tubercle bacilli. No evidence was obtained that treatment in a hospital without long-term bed rest had a deleterious effect on the course of the tuberculous infection in these patients. The hope is expressed that this policy of early ambulation and rehabilitation under cover of chemotherapy with isoniazid, alone or with other agents, might be more effective than long-term bed rest in preventing subsequent reactivations of tuberculous infection.

The After-History of Pulmonary Tuberculosis: IV. Far Advanced Tuberculosis. D. W. Alling, N. S. Lincoln and E. B. Bosworth. Am. Rev. Tuberc. **70:**995-1008 (Dec.) 1954 [New York].

A study was undertaken to examine the clinical course of 224 persons (148 men and 76 women) in whom advanced pulmonary tuberculosis was detected between 1938 and 1948. The patients were residents of eight upstate New York counties. Persons were admitted to study on the date of diagnosis, and their clinical course was assessed at yearly intervals. As chemotherapy was given in only a few instances, the after-history is an indication of the results of treatment in the era immediately preceding the use of these agents. One of the authors reviewed the chest roentgenograms and selected the earliest film of each patient that showed evidence of tuberculosis. The stage of disease was estimated from this film, and the maximum diameter of all visible cavities was measured. In the few cases in which the reviewer differed with the estimate of stage entered in the clinical record, a consultation was held to effect a mutually acceptable decision. In all but one of the 224 patients the disease was classified as active. There was a significant decrease in the annual incidence of new cases of far-advanced disease. Only three patients were lost to follow-up observations or report during the period of study. The median duration of symptoms prior to diagnosis was short (nine months) and remained constant. Earlier investigators had established that 10 years after diagnosis 25% of patients with this type of tuberculosis could be expected to have arrested disease, 5% to have active disease, and 70% to be dead. More than 25% of the patients died during the first six months after diagnosis, and almost 40% died during the first year. At succeeding anniversaries the increments in the cumulative mortality curve became progressively smaller, so that by the end of the third year 80% of the deaths expected in the 10 year period had already occurred. Summarized data on treatment indicate that in general younger patients received collapse therapy more frequently than the older patients. Relapse was less frequent after successful collapse therapy than after a successful course of bed rest. The present data show that age affects the frequency of relapse only insofar as it affects the choice of treatment. Age does, however, exert a profound influence on the clinical outcome of far-advanced tuberculosis, older persons having a case fatality more than twice that of young persons. Pulmonary tuberculosis that is far advanced at the time of diagnosis appears to contribute well over half of the total tuberculosis mortality.

Persistance of Rickettsia Rickettsii in a Patient Recovered from Rocky Mountain Spotted Fever. R. T. Parker, P. G. Menon, A. M. Merideth, M. J. Snyder and T. E. Woodward. J. Immunol. **73:**383-386 (Dec.) 1954 [Baltimore].

Parker and associates present the history of a 49-year-old man in whom a clinical diagnosis of Rocky Mountain spotted fever was confirmed by isolation of rickettsias in guinea pigs, a rise in titer of Proteus OX 19 agglutinins to 1:1,280, and a complement fixation titer of 1:160. After a lengthy hospitalization, the patient was discharged. He remained well and was asymptomatic one year later, when a lymph node excision was performed. Viable rickettsias were isolated, and the recovered agent was maintained by serial passage in guinea pigs and fertile hens' eggs. Identity of the isolated agent was established by: (1) the development of specific complement-fixing antibodies in guinea pigs, (2) direct visualization of the micro-organisms in yolk sac tissues, and (3) the demonstration of its ability to afford cross immunity to a standard laboratory strain of R. rickettsii. The authors point out that rickettsias, recovered from the patient's venous blood during the original infection, produced, in guinea pigs, fever and scrotal changes consistent with those seen after inoculation of highly virulent strains. These rickettsias, after residing in the human host for one year, however, produced little or no scrotal reaction and minimal febrile response in guinea pigs. This alteration in virulence, if real, may have resulted from prolonged contact with mechanisms of host defense, from exposure to the action of chloramphenicol and chlortetracycline, or from lengthy storage in dry ice. Nevertheless, the possibility of attenuation of the Matthews strain of rickettsias is entertained and its use as an agent for provoking active immunity to Rocky Mountain spotted fever will be explored. It is recognized that the more extensive use of the broad spectrum rickettsiostatic antibiotics in the treatment of patients with Rocky Mountain spotted fever may lead to a recrudescent form of the disease. Since 1934 considerable evidence has accumulated substantiating Zinsser's hypothesis that Brill's disease is a recrudescence of epidemic typhus fever. Serologic studies have demonstrated the close relationship of Brill's disease and epidemic typhus fever, furthermore, Murray et al. isolated Rickettsia prowazekii by feeding lice on patients during the active febrile stage of Brill's disease, but so far rickettsias have never been isolated from the tissues of patients who recovered from epidemic typhus. However, in another rickettsiosis, scrub

typhus, Smadel and colleagues isolated viable Rickettsia tsutsugamushi from the lymph nodes of two convalescent patients 5 and 15 months after their initial infection.

Present Aspects of Viral Pneumopathy in Adults and Adolescents. H. Boucher. Semaine hôp. Paris **30**:4358-4368 (Dec. 10) 1954 (In French) [Paris, France].

The incidence of viral pneumopathy is on the increase only apparently; actually, this condition is being discovered more and more frequently because it is no longer masked by bacterial infections. In France at the present time, only four forms of viral pneumopathy are encountered: primary atypical pneumonia, influenza, ornithosis, and Q fever. The symptoms of these diseases may range from slight bronchitis to extremely severe bronchopneumonia; there are, however, three sets of circumstances in which the syndrome is noted: 1. The patient has general and functional signs indicative of severe pulmonary disease or general infection. 2. The patient consults the physician for a painful, tenacious cough of one or more weeks' duration, which does not yield to ordinary measures. 3. An asymptomatic but abnormal lung picture is discovered by roentgenogram, either systematically or by chance, and further examinations are carried out. A marked discrepancy often exists between the clinical and radiographic signs, the latter being usually, but not always, predominant. In some cases the reverse is true. The most important radiographic sign is a shadow that radiates from the hilum. It is pointed out that all the roentgenographic images of viral pneumopathy have a great tendency to simulate those of other diseases, especially tuberculosis. The pattern of their modifications throughout the course of the disease must be known in order for them to be clearly recognized. In the first phase of a virally caused pulmonary disease, roentgenographic symptoms develop rapidly and are seldom seen because they precede clinical symptoms. The typical picture is one of hilar enlargement not involving the lymph nodes, with cross marked strips radiating from the hilum. During the period of regression, the following three types of picture are seen (in order of decreasing frequency): atelectasis in strips, resorption or pseudocavities, and pseudobronchiectasis. Bronchoscopy reveals (1) hyperemia of the bronchi with resistance to anesthesia, (2) cough-producing irritability on contact, (3) mucous or mucopurulent hypersecretion, and (4) complete freedom of the bronchial ramifications. Serologic diagnosis is based on the presence of cold agglutinins at the rate of 1/40 or more and the presence of transitory disturbances in syphilitic serologic tests. Determination of the exact virus responsible in a given case must be performed by a specialist in virology; he must be furnished with two samples of the patient's serum, one taken as near the beginning of symptoms as possible, preferably before the fourth day, and the other 10 days later. In regard to differential diagnosis, it should be remembered that these viral diseases of the lungs clinically simulate three other diseases, namely, typhoid fever, septicemia, and the acute meningeal syndromes. They are in turn simulated by the common cold, pneumococcic pneumonias with atypical manifestations, aspiration pneumonia, reactivated unrecognized bronchiectasis, and circumscribed bronchitis.

Clinical Effects of Dihydrogenated Ergot Derivatives in Certain Vascular Diseases. E. July and J. Babilliot. Semaine hôp. Paris **30**:4369-4371 (Dec. 10) 1954 (In French) [Paris, France].

About 100 patients with vascular disease were treated with Hydergine (methanesulfonates of dihydrogenated ergotoxine alkaloids). The method of treatment used in most cases consisted of injections of Hydergine in 10 cc. of 1% procaine given in the femoral artery twice or three times weekly and a daily subcutaneous injection of one ampul of the drug. This was followed by oral maintenance therapy (drops or tablets). No undesirable side-effects were noted. Three groups of patients were treated. 1. Of 43 persons with postphlebitic disturbances, 38 gained improvement; 25 of these were cured. 2. Thirty-one patients had obliterating arteritis of one or both legs; improvement was especially marked in persons with cases not complicated by gangrene or ulcer formation (15 out of 20 cases in which good improvement was noted). Of 11 patients who had complications, one was cured and 2 obtained good improvement. 3. Cutaneous manifestations existed in 25 patients; of 17 with chilblains, 15 were cured, but no effect could be discerned in patients with acrocyanosis or erythrocyanosis. In all, then, 75% of the patients treated obtained good results from Hydergine. It is noteworthy that the drug was effective in cases of venous origin as well as those of arterial origin.

Organization and Function of Clinic for Alcoholic Patient with Liver Disease: I. Effect of Rehabilitation on Hepatic Abnormalities. C. M. Leevy, C. L. Cunniff, D. Walton and M. Healey. Quart. J. Stud. Alcohol. **15**:537-544 (Dec.) 1954 [New Haven, Conn.].

Patients hospitalized for alcoholism and its complications at the Jersey City Medical Center were routinely studied for the presence of liver disease. With its discovery, they were made aware of the necessity for control of hepatic abnormalities by dietary therapy and abstinence from alcohol. The case material reviewed in this paper includes 41 patients with fatty liver and 126 with Laennec's cirrhosis. There were 13 women and 154 men. Alcoholism had interfered with their normal dietary habits, work, and social responsibilities. The patients had consumed large quantities of alcoholic beverages periodically or continuously for periods ranging from six months to several years. Ingested food had been grossly deficient in animal and vegetable protein or consisted entirely of carbohydrates. The authors found that ability to control the alcoholism was related to the severity of the physical disability accompanying the liver disease and the psychological status of the patient. Seventy-six (45%) of the patients adhered to a program of abstinence from alcohol and maintenance of an adequate diet. This was associated with a disappearance of all evidence of liver disease in those with fatty liver and stabilization of the hepatic process in those with mild to moderate cirrhosis. Progressive clinical, biochemical, and histological changes terminating in irreversible hepatic insufficiency occurred in those patients who did not adhere to therapy. Alcoholic patients should be evaluated periodically for the presence of liver disease and intensive treatment given if it is found. If hepatic changes are not recognized and remain untreated, they will eventually become irreversible, leaving the victim incapacitated and frequently a burden to society. The authors feel that the patients reported in this series represent only a selected segment of alcoholics with liver disease. Alcoholics in less severe stages of the disorder often have liver disease that goes undetected. Fully one-fourth of patients with hepatic disease have severe cirrhosis of the liver. In this stage, response to treatment is limited.

Therapy of Pernicious Anemia with Oral Administration of Vitamin B_{12} and of Extract of Gastric Mucosa. A. Krebs. München. med. Wchnschr. **96**:1451-1453 (Dec. 3) 1954 (In German) [Munich, Germany].

Krebs reports observations on 17 patients with pernicious anemia who were treated by oral administration of a preparation containing vitamin B_{12} and powdered mucosa of the pyloric portion of hog stomach. Two types of dragées were available, one contained 2.5 mcg. and the other 5 mcg. of vitamin B_{12}, and each contained in addition 130 mg. of defatted, purified powdered gastric (hog) mucosa. Eight of the patients had received no previous treatment for pernicious anemia. All of these patients responded promptly to the oral medication. These previously untreated patients were given two of the dragées containing 2.5 mcg. of vitamin B_{12} from three to five times daily or one dragée containing 5 mcg. of vitamin B_{12} three times. With this treatment the appetite improved at once, and a few days after the beginning of treatment the reticulocytes showed a steep increase, the peak being reached between the 9th and 13th days. After the reticulocytes had again decreased to normal values, they did not show a renewed increase after parenteral administration of vitamin B_{12}. This likewise indicates that the combined oral therapy had produced an adequate hematopoietic effect. The typical reticulocytic crisis was accompanied by normalization of the red blood picture and disappearance of anisocytosis and poikilocytosis. The examination of the sternal marrow revealed that soon after the onset of treatment megaloblasts were transformed into normal erythrocytes. The glossitis existing in six of the patients began to sub-

side about the fifth day of treatment. The signs of degeneration of the spinal cord, which existed in five of the patients, began to improve after treatment had been continued for about a week, and they had completely disappeared when the blood picture had been normalized. After normal hemoglobin and erythrocyte values had been established, the patients were given maintenance therapy, one dragée containing 5 mcg. of vitamin B_{12} daily. This maintenance therapy was continued for up to 11 months and was given not only to the eight patients receiving the described therapy but also to the nine patients who had previously received vitamin B_{12} by parenteral administration.

Studies on Immunity in Anthrax: Immunizing Activity of Alum-Precipitated Protective Antigen. G. G. Wright, T. W. Green and R. G. Kanode Jr. J. Immunol. **73:**387-391 (Dec.) 1954 [Baltimore].

In previous reports Wright and co-workers had described the elaboration of the protective antigen of Bacillus anthracis in chemically defined, nonprotein mediums and studies on the influence of cultural conditions on elaboration of the antigen. Furthermore, preliminary evidence had been presented that the protective antigen in culture filtrates could be concentrated, stabilized, and partially purified by precipitation with alum. The present report presents further experimental studies of the immunizing activity and related properties of the alum-precipitated antigen. The product induced effective immunity in rabbits, guinea pigs, and monkeys. Significant immunity persisted for more than 3 months in rabbits and for more than 14 months in monkeys. Immunity in monkeys was effective against both intracutaneous and respiratory challenge. Alum-precipitated antigen deteriorated slowly when stored at 4 C, but considerable potency remained after storage for about two years. The product was devoid of toxicity when tested in mice, guinea pigs, rabbits, and monkeys. Injection of the antigen into man was well tolerated; no serious reactions were encountered, and moderate local reactions were infrequent.

An Epidemic of Inoculation Hepatitis. Ø. Aagenæs, H. Bach and S. E. Budolfsen. Acta med. scandinav. **150:**243-256 (No. 4) 1954 (In English) [Stockholm, Sweden].

In 1952, 49 patients with acute hepatitis were admitted to the medical department of the Kommunehospital in Aarhus, Denmark. These patients had been admitted to this hospital or treated in its medical outpatient clinic for various diseases such as cardiac disease, diabetes mellitus, and rheumatoid arthritis within the last six months before the occurrence of acute hepatitis and thus were considered to be "return cases," as against six to seven "return cases" observed annually during the preceding years of 1948 to 1951. The total number of notified cases of acute hepatitis occurring in the course of 1952 in the district served by the medical department of the Aarhus Kommunehospital was small as compared with that in the preceding years. The age distribution of the 49 patients showed a distinct difference from that of a series of patients with acute epidemic hepatitis from the same district who were treated in the department of epidemiology of another hospital. The age distribution of the 49 patients, however, showed good agreement with that of the usual patients of the medical department of the Aarhus Kommunehospital. Return cases were most frequent among patients who had been treated with corticotropin (ACTH) or cortisone and among diabetic patients, as compared with the usual patients of the medical department. As the average minimum incubation period for the 49 patients was 105 days, it was concluded that the hepatitis had been transmitted by inoculations. A new, adequately sterilized injection set was used for each diabetic patient for his insulin injections, and, therefore, it is unlikely that any of the patients could have been infected through the insulin injections. Frequent withdrawal of blood samples, however, was carried out in the diabetic patients, and treatment with corticotropin and cortisone also implied the collection of a large number of blood samples. The authors believe that certain observations suggested that the transmission of the virus could be traced to the withdrawal of blood samples. During the same period, two cases of acute hepatitis occurred in laboratory technicians of the department. Comparison of the course of the frequency curve of the epidemic with the probable contacts between the two laboratory technicians and the patients with the return cases did not provide definite, or even probable, proof of these two technicians as being the source of the infection. Adequate sterilization of the instruments used for blood withdrawals and injections is indispensable. The same syringe and needle should never be used for more than one patient at a time, and the instruments must be sterilized, whether the set is used for the collection of blood or for an injection. The instruments must be sterilized by boiling or by dry heat. It is equally important to give detailed instructions with a special view to the modes of transmission of inoculation hepatitis to the staff using the instruments. Only when these precautions have been taken is it possible to effectively prevent the transmission of inoculation hepatitis through blood withdrawals and to reduce the high frequency of hepatitis among hospital personnel.

SURGERY

Surgical Treatment of Rheumatic Heart Disease. C. Crafoord and L. Werkö. Am. J. Med. **17:**811-825 (Dec.) 1954 [New York].

Crafoord and Werkö conclude that only the valvulotomies for mitral stenosis and pulmonary stenosis, respectively, have given results that have established them as suitable for use in the practical work of treating patients. They are the only operations that do not carry an undue mortality rate and are technically easy enough to be recommended for general use. Hemodynamic studies were performed about six weeks after commissurotomy in 30 patients who were operated on at the surgical department of Sabbatsberg's Hospital in Stockholm, Sweden; 19 (60%) showed pronounced postoperative improvement and 11 slight or no improvement. The patients in the improved group showed continued clinical improvement up to three years after the surgical intervention. The surgical treatment of both aortic stenosis and incompetence must be considered to be still in the experimental stage. With the use of extracorporeal oxygenation and circulation, perhaps combined with hypothermia, heart surgery will enter a new era and operative methods now impossible to conceive will add to the possibilities of treatment in patients with rheumatic heart disease.

Patent Ductus Arteriosus with Reversal of Flow. A. J. Gordon, E. Donoso, L. A. Kuhn and others. New England J. Med. **251:**923-927 (Dec. 2) 1954 [Boston].

Gordon and associates report a patient with a patent ductus arteriosus with reversal of flow. Records were available from the age of 10 years to death during operation at the age of 25. At the age of 10, the girl had intermittent fever for several weeks. Examination revealed "systolic and diastolic murmurs." The pulmonic second sound was accentuated. Fluoroscopic study showed a dilated pulmonary artery and moderate enlargement of the left and right ventricles. An electrocardiogram disclosed right axis deviation. A diagnosis of probable patent ductus arteriosus was made and the possibility of subacute bacterial endocarditis considered, but a blood culture was negative. A year later the diastolic murmur was no longer audible. At the age of 19 the patient was hospitalized because of hemoptysis, dyspnea, and wheezing. There was no cyanosis or clubbing of the fingers. At the age of 22, the girl was hospitalized because of increasing anxiety, exertional dyspnea, and weakness. Faint cyanosis of the fingernails was noted. A transient systolic murmur was heard at the apex. Cardiac catheterization was performed, but no abnormal communications were demonstrated. After discharge from the hospital the patient experienced anxiety and became addicted to barbiturates. In addition there were dizzy spells, increasing dyspnea on exertion, cyanosis, palpitation of the heart, and pain in the anterior aspect of the chest radiating to the left shoulder. At 24 years of age, she was admitted because of extreme apprehension and attacks of shortness of breath. She was cyanotic, but there was no clubbing. The left hand was more cyanotic than the right. This last observation increased the growing suspicion of patent ductus arteriosus with reversal of flow. Two other facts supported this assumption: a murmur suggestive of patent ductus had been heard at the age of 10, and the brachial artery blood, in 1947

and 1950, had been fully saturated with oxygen, whereas femoral artery blood, in 1950, had been unsaturated. Angiocardiographic studies revealed, simultaneously with the visualization of a dilated pulmonary artery, that the ductus arteriosus itself was filled with contrast medium. During the operation, after the ductus had been completely isolated but before any attempt to ligate it was made, the heart action became very poor, and the patient died. The authors raise the question of whether the girl had pulmonary hypertension with reversal of flow at the age of 10 or whether reversal of flow was an end-stage in the increasing pulmonary hypertension that may occur in any case of patent ductus arteriosus. It is impossible to state at what age the right-to-left shunt first began. The authors comment on the physiological reactions to anxiety and on the surgical problems posed by patients with patent ductus arteriosus and reversal of flow. They suggest the principles by which the surgeon should be guided.

Hyperparathyroidism Due to Parathyroid Adenoma: Report of Six Cases and Review. I. M. Baird, R. Grainger and B. C. Rowlands. Brit. J. Surg. **42:**140-151 (Sept.) 1954 [Bristol, England].

The six cases reported by the author illustrate the fact that early diagnosis of hyperparathyroidism may prove difficult. Only three of the six patients had generalized bone porosis. A parathyroid adenoma was successfully removed in three of six patients. In a patient with severe bony deformity an interesting coincidental finding was a gastric carcinoma, which gave rise to the clinical suspicion of bony metastases. Two patients had a localized bony lesion; one had a myeloid epulis, and the other had an osteoclastoma. The significance of these isolated lesions was not realized until osteodystrophy developed. A plea is made for full biochemical investigation in this type of case. Renal lesions were present in four patients; two showed evidence of nephrolithiasis and two had nephrocalcinosis. The early occurrence of renal lesions, which may precede the osteodystrophy of hyperparathyroidism by many years, has been pointed out by other investigators. Hyperparathyroidism due to parathyroid adenoma must be differentiated from (1) hyperparathyroidism secondary to chronic nephritis; (2) hyperparathyroidism due to bony metastases; (3) primary bone diseases, such as osteitis deformans (Paget's disease) or multiple myeloma; and (4) diabetes insipidus or mellitus. The clinical features of this disorder are protean. Discussing the radiological features of hyperparathyroidism, the authors direct attention to subperiosteal bone resorption, a phenomenon that was first accurately described by Camp and Ochsner in 1931 and is now largely neglected in radiological textbooks. This valuable diagnostic sign was seen in all three instances in which radiographs of the hands were available. This particular type of bone absorption was reinvestigated by Pugh in 1952. He found that it occurs only in the presence of excessive parathyroid activity, and, if chronic renal disease can be excluded, it is indicative of primary hyperparathyroidism.

Cases of Cancer of Stomach Treated in Surgical Department of Maria Hospital (Helsinki, Finland) from 1950 to 1952. H. E. Blomquist. Finska läk.-sällsk. handl. **96:**119-129 (No. 2) 1953 (In Swedish) [Helsinki, Finland].

Of the 145 patients with cancer of the stomach treated from 1950 through 1952 in the Maria Hospital, 84 were men and 61 women, two-thirds of them aged between 50 and 69 years. Comparison with earlier material from the hospital shows an increase in the number of cases of cancer of the stomach, somewhat higher age of the patients, and, in general, earlier admission for treatment. Roentgen examination continues to be the best means of diagnosis; the results were indicative of cancer in 77.6% of the cases. In early cases diagnosis is difficult. Seven gastrectomies were performed, with five deaths; the cases are thought to have been too far advanced on operation. In the 46 partial resections seven deaths occurred, giving an operative mortality of 15.2% as against 27.4% in the earlier material. The relative number of laparotomies was increased, with mortality of 8.3% as against 19% previously. The reduced mortality is ascribed to control of the water balance, improved methods for combating infections, and improvement in anesthesia.

Treatment of Portal Hypertension. W. A. Altemeier, P. I. Hoxworth, W. T. McElhinney and others. Am. Surgeon **20:**1235-1245 (Dec.) 1954 [Atlanta, Ga.].

The more recently devised surgical procedures for the correction of portal hypertension include thoracotomy for intraluminal or extraluminal ligation of bleeding esophageal varices, portacaval shunt, splenorenal shunt, mesenterocaval shunt, the Phemister procedure with resection of the lower esophagus and upper stomach, and ligation of the hepatic, splenic, and left gastric arteries. On the basis of the results that Altemeier and associates obtained in 34 patients with portal hypertension, they feel that the surgical formation of a venous shunt, either between the portal vein and the vena cava or between the splenic and renal veins, is the most satisfactory and safest procedure for the treatment of recurrent hemorrhage from esophageal varices. In this small number of cases, the splenorenal shunt has given the best results. Hepatic and splenic arterial ligation has given sporadic and irregular results in patients with portal hypertension and hemorrhage. In one-third of the patients, the results have been excellent; however, the higher over-all mortality rate resulting from these arterial ligations has made it a more dangerous procedure than a venous shunt. Patients with severe and advanced cirrhosis are much greater surgical risks than those with extrahepatic block. The presence of postnecrotic cirrhosis has been associated with a very high mortality rate in patients subjected to hepatic arterial ligation and probably should be considered a contraindication to this operation. There is suggestive evidence that hepatic and splenic arterial ligation is a valuable method in the management of patients with portal hypertension, although this is difficult to evaluate.

Massive Intraperitoneal Hemorrhage from Acute Cholecystitis with Perforation. C. A. Griffith and G. M. Bogardus. Am. Surgeon **20:**1291-1296 (Dec.) 1954 [Atlanta, Ga.].

Griffith and Bogardus feel that the problem of perforation of the gallbladder is of great practical importance, because the decision to operate in acute cholecystitis is largely dependent on its frequency and the dangers involved in it. Among the 48 operations that Griffith and Bogardus performed for biliary tract disease from 1951 to 1953, there were 11 patients with acute cholecystitis, and, of these 11, 4 had perforations. Two of the perforations resulted in local abscesses, one resulted in a subdiaphragmatic abscess, and the fourth case was associated with massive intraperitoneal hemorrhage. It concerned a man, aged 60, who was a chronic alcoholic. He had been relatively well until six days before entry, when he noted a sudden onset of diffuse epigastric pain. This pain soon became severer in the right upper quadrant, where it persisted as an unrelenting steady ache until admission. He had vomited occasionally but for the most part had tolerated a soft diet. He was treated conservatively for 36 hours. A vague mass was now evident in the right upper quadrant, which was very tender. On opening the peritoneum 1,500 cc. of dark red liquid and clotted blood was removed from the right subhepatic space. The incision then was extended medially. Exploration revealed a small, contracted, firm, nodular liver; dilated omental and gastroepiploic veins; an enlarged spleen; and a recently organizing hematoma surrounding the gallbladder. On entering this hematoma to inspect the gallbladder, brisk bleeding was observed that could be controlled only by packing. The source of bleeding was an acutely inflamed, friable, edematous gallbladder that had ruptured along its lateral hepatic attachment from its fundus to its ampulla. The fundus of the gallbladder was resected. Hemorrhage continued, however. It seemed to arise from the lumen of the ampulla and cystic duct. No bile was seen. Stones could not be felt. Hemorrhage was controlled by insertion of a pack extending through the lateral border of the wound. The immediate postoperative course was complicated by a moderate hepatocellular jaundice that subsided after 10 days. The patient was discharged eight weeks after the operation, but about five weeks later he had to be rehospitalized for another episode of hepatocellular jaundice. After that the patient enjoyed good health until he was admitted to the psychiatric department for alcoholism and depression. The literature pertaining to hemorrhage as a complication of acute gallbladder disease is reviewed, and the hazard of this complication, with its high mortality rate, is

noted. Early cholecystectomy or cholecystostomy is recommended to prevent the complications of acute cholecystitis, especially in the elderly patient.

Malignant Melanoma: Case with Long Period of Survival. F. Skjørten. Tidsskr. norske lægefor. **74**:711-712 (Nov. 15) 1954 (In Norwegian) [Oslo, Norway].

Malignant melanomas occur primarily in the pigmented tissue of the organism; about 80% are in the skin, most often in the extremities. In about 60% of the cases malignant melanomas develop from pigmented nevi. The frequency of occurrence varies under different geographical conditions and in different races. The disease is not rare in Norway; in 1951 there were 30 deaths from it. A pigmented nevus begins to grow, ulcerates, and secondary tumors are formed around the primary tumor. Treatment is surgical, in some cases supplemented by radiotherapy. After five years' freedom from recurrence the patient can as a rule be regarded as cured. Metastases later are exceptions. In the case described a thickening of the skin of the left foot that appeared in 1937 was excised in 1939. In 1940 glandular metastases were removed from the fossa poplitea and the groin. In 1953, after an interval of 14.5 years, pulmonary metastases were diagnosed and removed. The patient is subjectively well 15 years after removal of the primary tumor.

The Complications of Osteitis Pubis: Including Report of Case of Sequestrum Formation Giving Rise to Persistent Purulent Urethritis. B. D. Stutter. Brit. J. Surg. **42**:164-172 (Sept.) 1954 [Bristol, England].

Osteitis pubis occurred in 1.7% of 352 cases studied by Stutter after operation for bladder-neck obstruction. The case reported by Stutter was that of a man, aged 62, who had symptoms of obstruction of the neck of the bladder due to enlargement of the prostate. Eight weeks after suprapubic prostatectomy symptoms of osteitis pubis appeared. Pain commenced in the perineum, radiated to the left knee down the inner side of the thigh, and was accompanied by localized tenderness over the symphysis pubis. With rest the pain largely disappeared, but the patient continued to complain of perineal pain, which was worse on sitting and on attempting to ride a bicycle. A radiograph showed an abnormally wide gap between the pubic bones and suggested osteitis pubis. The condition appeared to resolve eight months after the prostatectomy, but 11 months after this operation the patient complained of dysuria. He was found to have a purulent urethritis and left-sided epididymitis due to Micrococcus (Staphylococcus) pyogenes. After initial response to antibiotics and chemotherapy the condition relapsed and at urethroscopy a stricture was seen at the membranous urethra. Dilations with elastic bougies were followed by epididymitis. Later when urethral dilation was resumed, a grating sensation was noticed and a calculus suspected. A radiograph of the pelvis showed a shadow, apparently in the posterior urethra, which had the appearance of a sequestrum. At urethroscopy a mass of granulation tissue was seen at the junction of the bulbous and the membranous urethra. At this point there was noted the distal end of a spicule of bone that was removed with crocodile forceps. The author cites literature reports on other cases of sequestrum formation after osteitis pubis. Various therapeutic methods have been recommended for osteitis pubis, but all are unsuccessful in markedly lessening the prolonged period of disability. Rest in bed, local rest of the pelvic girdle by the application of a plaster-of-paris hip spica, administration of analgesics, and considerable patience are the mainstays of treatment at present. The causation of osteitis pubis and its complications is discussed by Stutter in the light of the hypothesis of avascular necrosis of the interpubic disk of fibrocartilage.

Chemosurgical Method for Microscopically Controlled Excision of Radioresistant Facial Cancer. F. E. Mohs. Am. J. Roentgenol. **73**:61-69 (Jan.) 1955 [Springfield, Ill.].

The chemosurgical technique advocated by Mohs achieves complete microscopic control of excision by a procedure that includes three steps: (1) chemical fixation of the tissues in situ, (2) excision of a layer of fixed tissue, and (3) systematic microscopic examination of frozen sections as a guide to further treatment. The microscopic guidance makes it possible to accurately follow out extensions that otherwise might go unrecognized because of their small caliber or because of their being obscured by scar or other indurated tissue. The author explains the technique on the basis of a diagram of a cancer with three slender downgrowths. The method can be used for the treatment of cancer on the external surface or in cavities sufficiently accessible for this multiple-stage procedure. This report is concerned with facial cancers that recurred after irradiation. The author comments on and reproduces photographs showing the results obtained with the chemosurgical method in cancers of the nose, the ear, eyelid, lip, and of other areas of the face. The chemosurgical procedure is a specialized one, which requires special training not only in the operative technique but also in the interpretation of the microscopic sections. Facilities and trained personnel for making the special type of frozen sections are also necessary. The author feels that such a setup should be made available in every large center of population.

The Value of Blood Volume Determinations in the Study of Patients Undergoing Surgery for Rheumatic Heart Disease. W. Likoff, D. Berkowitz, S. Geyer and others. Am. Heart. J. **49**:1-8 (Jan.) 1955 [St. Louis].

The usefulness of the determination of the blood volume in surgery for acquired heart disease rests with its ability to indicate a breakdown in compensation that escapes clinical detection and yet significantly influences the morbidity and mortality after surgical intervention. The blood volume was determined in 45 normal persons and 100 patients with rheumatic heart disease. Radioactive iodinated (I^{131}) human serum albumin (RISA) was used according to the technique of Storaasli and associates [see *J. A. M. A.* **145**:439 (Feb. 10) 1951], with certain modifications. This method proved to be adequate and practical for determination of total blood volume. Of the 100 patients with rheumatic heart disease, 54 had no clinical evidence of congestive failure, 20 were studied while in obvious congestive failure, and in the remaining 26 the classic manifestations of decompensation had disappeared while the patients were undergoing treatment in the hospital. The average total blood volume in the 45 normal persons was 75.1 cc. per kilogram of body weight. The average total blood volume in the 54 patients with compensated rheumatic heart disease was within normal limits. The average total blood volume in the 20 patients with congestive failure was elevated above that of the normal persons and fell progressively as compensation was restored in 9 of 11 patients studied serially. Normal values were obtained in only 4 of the 20 patients with obvious decompensation. In two of these patients the values were borderline; in the third, the measurement had fallen from a previously high value while the patient was under rigorous treatment for failure. Only one patient showed a total blood volume of 79 cc. and 70 cc. per kilogram of body weight on two separate determinations despite the most advanced signs of congestive failure, including grade 4 peripheral edema. Of 85 patients who were operated on for their heart disease, 26 had elevated blood volumes. Of the 59 patients with a normal total blood volume, 2 died and congestive heart failure developed in one, a combined morbidity-mortality rate of 5.6%. Four of the 26 patients with an elevated total blood volume died after the surgical intervention, and decompensation developed in 11, a combined morbidity-mortality rate of 57.6%. Regardless of the clinical picture, the morbidity and mortality of patients with elevated total blood volumes who were operated on for acquired heart disease were sharply increased beyond normal expectations. It is suggested that cardiac surgery for acquired heart lesions be delayed in all patients until the total blood volume is within normal limits. This is particularly true in those patients who offer a significant history of congestive failure or who have manifestations of decompensation. The increase in the morbidity and mortality is identical for patients with an expanded blood volume independent of the clinical signs of failure. In patients with obvious decompensation, a normal blood volume cannot be expected as an indication for surgery before the stabilization of the clinical picture.

Surgical Treatment of Spontaneous Idiopathic Hemopneumothorax: Review of the Published Experience with a Report of Thirteen Additional Cases. W. Fry, W. L. Rogers, G. L. Crenshaw and H. C. Barton. Am. Rev. Tuberc. 71:30-48 (Jan.) 1955 [New York].

In this report all cases of spontaneous hemopneumothorax associated with tuberculosis or other pulmonary disease, except cystic disease, have been eliminated from consideration. The conflicting statements about the number of reported cases of spontaneous hemopneumothorax are due to an inadequate examination of the literature and also, perhaps, to the different criteria used in classification. Hemorrhage into the pleura complicating spontaneous pneumothorax is a relatively rare complication of a rather common condition. Of their own cases of spontaneous pneumothorax, 8.3% have been complicated by a considerable amount of bleeding. The total number of cases recorded in the literature to date is 174. Undoubtedly the incidence of spontaneous hemopneumothorax is much greater than is indicated by the published cases. Of the 13 additional patients whose treatment is reviewed in this paper, 8 were treated at the U. S. Naval Hospital, Oakland, and 5 by private physicians. Two cases of traumatic origin are briefly mentioned in which the intrathoracic hemorrhage was delayed. These two cases might ordinarily be considered spontaneous hemopneumothorax except for the fact that severe trauma preceded the bleeding by about two weeks in each instance. The authors suggest that in many cases of spontaneous pneumothorax, with or without hemorrhage, there might have been trauma or exertion of recent date, which had been the inciting factor but had been forgotten or was considered irrelevant. Spontaneous idiopathic hemopneumothorax occurs almost exclusively in white males between the ages of 17 and 32. Only six cases of this clinical entity have been reported in women. A seventh case has been added. Autopsy and clinical evidence show that the origin of spontaneous idiopathic pneumothorax is usually from the perforation of a vesicle, while the source of complicating severe hemorrhage is variable but most often is the result of a torn pleural adhesion containing blood vessels. A wide variety of symptoms have been described, but the patients in the present series had only chest pain, dyspnea, and shock. The mortality rate of spontaneous idiopathic hemopneumothorax appears to be improving, possibly due to prompt and improved handling of these patients. The mortality rate for all cases reported to date is about 12%. The morbidity is great in spontaneous hemopneumothorax due to the formation of fibrothorax and its attendant interference with pulmonary function. In treatment, emphasis has been placed on primary thoracotomy as a life-preserving operation. Decortication for late sequelae of spontaneous hemopneumothorax also has been discussed.

Treatment of Cushing's Syndrome. P. M. F. Bishop, F. N. Glover, R. R. de Mowbray and M. G. Thorne. Lancet 2:1137-1140 (Dec. 4) 1954 [London, England].

Bishop and associates found that, in 15 patients with adrenal cortical hyperfunction (Cushing's syndrome), seen at Guy's Hospital in London, the average duration of illness was about seven years—about 5 years for the 10 males and 11 years for 5 females. Irradiation of the pituitary gland or subtotal adrenalectomy was used at Guy's Hospital in 21 patients. Radiotherapy, in doses of 3,800 r over a period of four weeks, was used in 17 patients. As five were also operated on, the effects of radiotherapy cannot be easily assessed in these cases. Of the other 12 patients, 4 women improved somewhat and are still alive, whereas 8 patients, including 6 men, did not benefit from this treatment, 7 of them now being dead. The more benign nature of adrenal cortical hyperfunction in women may explain this difference. The somewhat disappointing results obtained by radiotherapy and the recent reports from the Mayo Clinic encouraged the authors to resort to surgical treatment. They use perirenal insufflation of air 24 hours before intravenous pyelography. The air infiltrates the perirenal fat and outlines each adrenal gland, while intravenous pyelography shows the kidney up in firm contrast. If only one adrenal shows up well, the authors operate first on the side on which the outline of the gland remains obscure. In this way, if a tumor is present but not clearly delineated, it will be identified and removed at the first operation. If perirenal insufflation contributed no information, the authors at first removed two-thirds of the right adrenal gland, now they advocate the removal of nine-tenths of the gland on the left side. Total adrenalectomy on the opposite side is subsequently performed after a variable interval, depending on the clinical progress of the patient. The surgical technique and the preoperative and postoperative care are described and the results of adrenalectomy are discussed. Subtotal adrenalectomy was done in six patients, and four patients underwent unilateral partial adrenalectomy. The authors feel that adrenal cortical hyperfunction can be corrected by subtotal adrenalectomy. In a minority of patients unilateral adrenalectomy, either alone or combined with radiotherapy, may prove sufficient. In the more rapidly progressive cases, however, which probably comprise all the male and some of the younger female patients, subtotal removal of adrenal cortical tissue is required. In all these patients the pituitary gland should be irradiated after the first stage of adrenalectomy to prevent the regeneration of the remaining portion of the adrenal gland. In the only two patients of the present series in whom this policy was not followed, third operations for relapses caused by regrowth of adrenal cortical tissue were necessary. After subtotal adrenalectomy, patients with adrenal cortical hyperfunction may experience a state of adrenal cortical deficiency unlike that seen in adrenal cortical hypofunction (Addison's disease). This responds only to cortisone, which has to be given in doses exceeding those usually required in adrenal cortical hypofunction.

Cushing's Syndrome: Six Cases Treated Surgically. R. N. Beck, D. A. D. Montgomery and R. B. Welbourn. Lancet 2:1140-1144 (Dec. 4) 1954 [London, England].

Beck and associates present observations on four women and two men with adrenal cortical hyperfunction (Cushing's syndrome) in whom they performed bilateral subtotal adrenalectomy with satisfactory results. The length of history of adrenal cortical hyperfunction ranged from six months to 10 years. Hypertension was present in all six patients, and it was severe in four. Malignant retinopathy was present in three of the six patients. Osteoporosis was present in two patients, and one of these had severe back pain and a complaint of shortening of stature and was found to have several collapsed vertebral bodies. In both patients with osteoporosis radiography of the skull showed definite enlargement of the sella turcica. Changes in texture and color of hair varied in degree and were noticeable only in the women. For the biochemical confirmation of the diagnosis, the authors relied at first on the amount of 17-ketosteroids and 11-oxysteroids excreted in the urine. In the later cases they estimated instead the excretion of 17-hydrocorticosterone (compound F) as a direct indicator of an excess of glucocorticoid: in four patients the amounts excreted in 24 hours were determined both in the resting state and during stimulation by corticotropin, 25 mg. being given intravenously on each of two successive days. In the two hypokalemic patients, the alkalosis was readily corrected with the oral administration of potassium chloride. Irradiation of the pituitary did not prevent rapid progression of the disease in the two patients with enlargement of the sella turcica. The authors feel that subtotal adrenalectomy is the best solution in adrenal cortical hyperfunction. No simple method has been found of leaving a viable fragment of gland, and in only two cases were attempts to leave a portion of suprarenal tissue around the exit of the adrenal vein successful. The authors say that their present practice is to mobilize the major part of the gland, dividing it with scissors while it is still attached at one of its extremities. The remnant remained red in all cases and bled freely from the cut surface in most. Apart from slight enlargement in some cases, the suprarenal glands appeared normal. In one case an adenoma 1 cm. in diameter was found on the right side on microscopy, but all the other suprarenal glands were histologically normal. The use of cortisone is of chief importance in the postoperative management. Attention is drawn to a skin reaction that proved a useful indicator of postoperative cortisone deficiency. It chiefly involves the face and neck, and it spread in two cases to the outer aspect of the arms and backs of the hands. Erythema and pruritus developed, the skin was unusually dry, and superficial exfoliation took place, with the casting of fine scales. Improvement was obtained by

further adequate hormone therapy. The early results have been favorable in the four patients who have been followed for from 7 to 13 months. The bodily configuration has become largely normalized. The male hirsutism affecting two of the women has completely receded. Scalp hair has returned to its original lighter coloring and lost its excessive greasiness. Normal menstrual periods have returned to all three women. The blood pressure is now within normal limits, and retinopathy, previously grade 4 in the malignant case, is absent. These alterations in the physical state have been parelleled by increasing cheerfulness of temperament. In two other patients the operation has been too recent to permit evaluation.

The Management of the Tuberculous Hip Joint. W. Mercer. J. Bone & Joint Surg. **36A:**1123-1128 (Dec.) 1954 [Boston].

Chemotherapy for Mycobacterium tuberculosis has been long enough in general use to accept it as the most useful adjunct to surgical treatment of the tuberculous hip joint. The following combinations of chemotherapeutic agents are satisfactory: (1) 1 gm. of streptomycin sulfate daily, combined with 5 gm. of sodium *p*-aminosalicylate four times daily; the daily 20 gm. dose of sodium *p*-aminosalicylate corresponds roughly to about 15 gm. of *p*-aminosalicylic acid; (2) 1 gm. of streptomycin sulfate daily, combined with 100 mg. of isoniazid, twice a day; (3) 100 mg. of isoniazid twice a day, combined with 5 gm. of sodium *p*-aminosalicylate four times a day. With any of these combinations, the incidence of drug resistance should be exceedingly low. The existence of bone or joint tuberculosis always indicates that there has been a hematogenous dissemination of the disease, and, both for the immediate effect on the hip lesion and the effect on cryptic lesions, the author favors prolonged chemotherapy for at least one year but preferably to be continued for at least three months after it has been decided that the local lesion is quiescent and well under control. After the first six months, if combinations involving streptomycin have been used, one should switch to a combination of isoniazid and sodium *p*-aminosalicylate. The hip joint may be affected with tuberculosis in three ways: an extra-articular focus, synovial disease, and an intra-articular lesion, with destruction of the cartilage. After the administration of antibiotics, excision of an extra-articular focus should be carried out before the adjacent joint becomes involved. It is good practice to fill the cavity, after a thorough removal of all diseased bone, with cancellous-bone chips and to use streptomycin and penicillin powder locally. In synovial disease, there is every prospect of obtaining a mobile joint if the streptomycin and other drugs can reach it in sufficient concentration and if the joint surfaces are undamaged. Early diagnosis and decompression are essential in order to save the joint, and, therefore, biopsy is justified, apart from diagnosis, to relieve tension and to allow penetration of the chemotherapeutic agent. As much of the diseased synovial membrane as possible, together with part of the capsule, must be removed. After removal of the diseased synovial membrane, fresh normal synovial tissues, carrying young blood vessels through which the antibiotics can circulate freely, will form. The only form of immobilization necessary during this treatment is by skin traction. In intra-articular lesions, with most of the articular cartilage still intact, the diseased focus in Babcock's triangle or in the acetabular region must be approached and thoroughly eradicated, the area being packed with cancellous-bone chips. Penicillin and streptomycin powder are used locally. It is necessary to immobilize the joint in plaster for a few weeks or by fairly heavy traction. Although some patients will show extension of the osseous disease process and may require arthrodesis at a later stage, one may gain a mobile hip and all of its benefits in many patients. In case of damaged articular cartilage, bony fusion is necessary. Brittain's arthrodesis by an open approach from the posterior aspect is infallible in securing union. A tuberculous abscess should be removed as soon as possible, usually by aspiration; it may be necessary to drain the abscess by incision. Every effort should be made to cause sinuses to heal and to prevent secondary infection. This can usually be achieved by using antibiotics, locally and generally; surgery may be needed if the walls of the sinus tract are thick or if there is an associated sequestrum of bone. Antibiotics may be expected to shorten the course of tuberculosis of the hip joint. Rigid immobilization for a long time is probably no longer essential, and one hopes that the undesirable effects of immobilization, such as renal calculi, osteoporosis, and premature epiphysial closure, leading to a distressfully short extremity, will also become things of the past. To achieve bony ankylosis of a tuberculous hip joint must still be the surgeon's aim and the method of choice because of its long proved efficacy, but one must strive for early diagnosis of the lesion by biopsy so that the patient is left with a functioning and mobile hip.

Adrenalectomy in Human Diabetes: Effects in Diabetics with Advanced Vascular Disease. J. T. Wortham and J. W. Headstream. Diabetes **3:**367-374 (Sept.-Oct.) 1954 [New York].

Wortham and Headstream report observations on seven diabetic patients with retinopathy and other evidences of advanced vascular disease in whom bilateral adrenalectomy was done. After operation the patients were given replacement therapy in the form of cortisone and hydrocortisone. Two patients, observed for 14 and 10 months, respectively, experienced remission of vascular degeneration, as evidenced by minor reversals in retinal changes, return of blood pressure to normal, decrease in proteinuria and nitrogen retention, and clearance of edema. In three cases there has been no further progression in the pathological features during 13, 10, and 8 months of observation, and other features suggesting improvement have occurred. One of these patients died in adrenal insufficiency after leaving the care of the service, having initially shown minor improvement. Two patients continued to show progression of renal failure after adrenalectomy: one died of a cerebral vascular accident 4.5 months after operation, and the other died of pulmonary and myocardial infarctions four months after operation. In general, favorable results occurred in inverse proportion to the severity of degenerative vascular changes. This observation has led to the establishment of some criteria for selection of patients for adrenalectomy. Patients with extremely severe vascular and renal deterioration are excluded from consideration. Patients with significant nitrogen retention who excrete more than 5 gm. of urinary protein daily and who have diastolic blood pressures above 120 mm. Hg are also excluded. The authors cite evidence that the adrenal cortex plays a significant role in the origin of degenerative vascular disease in diabetics.

NEUROLOGY & PSYCHIATRY

Juvenile Amaurotic Idiocy in Norway. A. J. Nissen. Nord. med. **52:**1542-1546 (Nov. 4) 1954 (In Norwegian) [Stockholm, Sweden].

Juvenile amaurotic idiocy, or Vogt-Spielmeyer's disease, was described in Norway as early as 1826 by Stengel, who reported four cases in siblings. It is a degenerative familial disease. Inheritance seems to be recessive. The affection is characterized by increasing blindness, epileptic seizures, and increasing dementia, with death in the course of a few years. The anatomic substrate is a degenerative condition in the nervous system. The disease belongs in the group of lipoidoses. The children are born well, to be overtaken by their fate at about school age. The 10 cases examined by the author are from four families in the vicinity of Trondheim. Two of the families are from mountain districts in the geographical section in which the case reported by Stengel occurred. The causative hereditary substance has presumably been present in the locality since far back in time.

Analysis of Some Factors in Spontaneous Subarachnoid Hemorrhage. S. A. Jacobson. A. M. A. Arch. Neurol. & Psychiat. **72:**712-719 (Dec.) 1954 [Chicago].

Jacobson collected from the literature the major series of cases of spontaneous subarachnoid bleeding. The series were taken from clinical material in which the diagnosis of spontaneous subarachnoid hemorrhage was made from the syndrome of sudden onset of severe meningeal irritation, with or without focal neurological signs, with bloody or xanthochromic spinal fluid, and in which conditions such as blood dyscrasia, trauma, syphilis, infections, and neoplasms could be ruled out. The

total number of cases surveyed was 1,490, and in these, 750 patients died (51% of all the patients with subarachnoid hemorrhage). In 388 cases the duration of follow-up of the cases is not listed. In the 1,102 cases in which the period of follow-up was given, there were 591 deaths. The mortality rate is generally assumed to be between 40% and 50%, a figure that is valid only for the period from one month to one year. Before one month has elapsed the mortality rate is lower, and after one year it is greater. The mortality of subarachnoid hemorrhage falls into two categories: those cases in which death is due to the first attack and those in which the patient succumbs to a subsequent bleeding. A great deal of attention has been given to the group with subsequent bleeding, and many of these persons can be helped with treatment. Nothing except palliative and supportive treatment can be given to those who die in the first attack, which group represents about 28% of all cases with subarachnoid hemorrhage. Only four of the signs found in this condition are reported in the literature in sufficient detail to be analyzed for their prognostic significance. These signs are coma, convulsions, hypertension, and papilledema. The appearance of any of the first three signs, singly, the first two to a greater degree than the third, is indicative of a poor prognosis for life. There are no data on the prognosis when a combination of these four signs exists, but one could logically assume that this would be an even more direful portent. The age of the patient at the onset of the hemorrhage has no effect on the mortality rate. The prognosis of subarachnoid hemorrhage is influenced by the fact that in addition to the patients who die, about 10% of all patients with subarachnoid hemorrhage are maimed to a significant degree. It is not clear from the literature in what percentage of patients with subarachnoid hemorrhage an aneurysm occurs, but 50 seems to be a fair estimate. This incidence is an important consideration from the point of view of surgery, for only the cases with demonstrable aneurysms, arteriovenous malformations, and tumors can be treated surgically, and not all of these cases can be so treated. A frequent contraindication to surgery is multiplicity of the aneurysm, which is present in about 13% of all patients who have aneurysms. A thorough angiographic study is indicated before surgical treatment is done. Angiomatous malformation was found in only 3 of 154 cases of subarachnoid hemorrhage, that is, it is an uncommon cause of such bleeding.

Familial Periodic Paralysis, Myotonia, Progressive Amyotrophy, and Pes Cavus in Members of a Single Family. J. R. Stevens. A. M. A. Arch. Neurol. & Psychiat. **72:**726-741 (Dec.) 1954 [Chicago].

Stevens presents observations on a family, the members of which had a number of different myopathic disorders. Historical and clinical observations were available on five generations of this family. Seventeen members of this family were examined personally by the author, and their clinical histories and the results of neurological and laboratory examinations are presented. Twenty-three persons in this kindred are known to have had periodic attacks of generalized muscular paralysis; a progressive wasting of skeletal muscles has developed in eight, commencing in early adulthood; pes cavus developed in childhood or early adolescence in five persons (independent of the progressive amyotrophy); seven are reported to have displayed enlarged calf musculature in childhood; and five persons now have symptoms and signs of myotonia. One patient has had symptoms of (and successful neostigmine [Prostigmin] treatment for) an apparent myasthenia, in addition to periodic generalized paralysis, pes cavus, progressive muscular wasting, and myotonia. Areflexia of the lower limbs is present in six persons. Marked elevation of the longitudinal arch of the foot or hammertoes (contraction of extensor tendons of the pedal digits) is present in three persons without frank pes cavus or clawfoot. The relationship of the hereditary muscular dystrophies is reviewed. There is some evidence that a hereditary neuroendocrine factor may be the cause of these different syndromes. Alterations in the potassium content of serum or muscle in some of the conditions, such as in periodic paralysis, myotonia, or myasthenia gravis, may be only a manifestation of a central defect, which as yet has eluded measurement by other methods.

Euphyllin Prophylaxis, Therapy, and After-Treatment of Apoplectic Stroke. E. Weihs. München. med. Wchnschr. **96:**1453-1454 (Dec. 3) 1954 (In German) [Munich, Germany].

Weihs reports the history of a man, aged 43, who recovered from several apoplectic strokes, when aminophylline (Euphyllin) was administered intravenously shortly after each stroke. Later, the patient was given intramuscular injections of aminophylline, and he seems to have recovered completely. Observations in the author's practice convinced him that the intravenous administration of aminophylline should be started as soon as possible after the stroke, at any rate during the ischemic stage, and before necrosis of the cerebral tissue has set in, or before there has been a hemorrhage. After there has been bleeding, aminophylline is contraindicated, because the drug presumably exerts its effect by vasodilation. The author emphasizes that the apoplexy is not the sequel of hemorrhage but rather the bleeding results from the apoplexy. The apoplectic stroke is that phase during which ischemia is produced either as the result of an embolus or of an angiospasm (vasoconstriction). Subsequently, there results either necrosis, or, if the vessels are sclerotic, bleeding may result from the rupture of a vessel. The author observed that when the drug was injected intravenously within 10 minutes, or at least within an hour of the attack, the coma subsided within a few minutes. He also stresses that intravenous injection is required for this immediate effect. However, for the after-treatment, and to prevent further strokes, the drug should be administered by intramuscular injection.

Treatment of Life-Threatening Poliomyelitis. F. Neukirch. Helvet. paediat. acta **9:**381-402 (Nov.) 1954 (In German) [Basel, Switzerland].

Of 348 patients with poliomyelitis complicated by respiratory insufficiency whose lives were threatened by the disease when admitted to the Blegdams Hospital in Copenhagen, Denmark, during the 1952-1953 epidemic, 30 were hospitalized before the introduction of the new methods of treatment; 26 of these 30 patients died, a mortality rate of 87%. The remaining 318 patients were divided into four groups and were treated as follows. Group 1 consisted of patients with reduced but sufficient ventilation who did not receive special treatment but were observed continuously. Group 2 comprised patients with air passages and hypopharynx free from secretion (dry cases) but with insufficient ventilation; respirators were used for the treatment of these patients. Group 3 consisted of patients with secretions in the air passages and hypopharynx (wet cases) and with normal or reduced but sufficient ventilation; postural drainage and stomach tube were used for their treatment, and occasionally tracheotomy was performed. Group 4 comprised wet cases with insufficient ventilation; treatment in this group consisted of tracheotomy and hyperventilation. Tank and cuirass respirators proved to be effective in the treatment of patients with purely spinal paresis of the respiratory muscles. As soon as dysphagia occurs and the patient no longer is capable of maintaining his air passages free from secretions, intratracheal positive pressure breathing carried out most satisfactorily with the aid of the Engström respirator is the method of choice. This apparatus supplies an active inspiration with graded volume that is insufflated into the air passages with the aid of respiratory mask, intubation catheter, tracheal tube, or tracheal cannula. The active expiration is produced by the compression of the anterior lower portions of the thorax with the aid of an inflatable girdle and, respectively, with the aid of an intermittent negative pressure phase that is delivered directly into the air passages. Thanks to the perfection of the techniques of management of the wet form of bulbar paralysis, the mortality of the bulbar type was reduced in the course of six months from 87% to 11%. Of the total number of 318 patients reported on, 116 died i. e., a mean mortality rate of 37%.

The Controversial Use of Cervical Sympathetic Block in Apoplexy. G. de Takats. Ann. Int. Med. **41**:1196-1210 (Dec.) 1954 [Lancaster, Pa.].

The arguments for and against the use of cervical sympathetic block in apoplexy are reviewed. The rationale of this method is that it decreases cerebrovascular resistance, and this must necessarily be of benefit to an ischemic area of the brain. Postmortem evidence obtained by Hicks and Warren indicates that, in 60% of cases of cerebral infarction, there is no mechanical occlusion of cerebral vessels by embolism, thrombosis, or arteriosclerosis, and in only a few patients is there shock or heart failure, thus pointing to vasoconstriction as the cause of the ischemia. These findings throw serious doubt on the accuracy of differentiating hemorrhage from thrombosis or embolism; just as myocardial infarct is a more secure diagnosis than coronary thrombosis, so it might be wise to speak of cerebral infarction. This report is concerned with the treatment of 55 patients with apoplexy by means of blocking injection of the cervical sympathetic trunk. They received from one to 10 injections daily; 48 received 90 sympathetic blocks, 2 had plastic catheters left in the vicinity of the cervical sympathetic chain for five and seven days, respectively, and 5 were given bilateral injections, a total of 109 injections. Injections were given only once if there was complete regression of neurological symptoms or if the result was completely normal in spite of the appearance of a Horner's syndrome. There were no failures in the group of 14 patients with embolism, but among the 41 patients with infarct there were 23 failures, or 55%. This high rate cannot represent worthlessness of the procedure, in view of the improvement obtained, which was dramatic in many cases. It rather represents the inadequacy of present clinical diagnosis of cerebrovascular accidents. Sympathetic block can help only if the infarct is surrounded by a zone of edema and vasoparalysis, if the cerebral vessels are not unduly sclerotic, and if the circle of Willis is able to function as an effective shunt when one internal carotid artery or its main branches are blocked. If prolonged hypotension exists, a temporary revascularization of the ischemic infarct by sympathetic paralysis cannot take place. There is as yet no method for proper screening of patients with cerebral infarct who will or will not be benefited by the block, but, since the technique is harmless and the good results gratifying, the author will continue to practice these injections.

Isonicotinic Acid Hydrazide in the Treatment of Schizophrenia. I. H. MacKinnon, S. T. Michael and P. Polatin. Psychiatric Quart. **28**:668-672 (Oct.) 1954 [Utica, N. Y.].

When isoniazid was used in the treatment of tuberculosis in 48 mental patients, it was unexpectedly discovered that the mental condition of a number of schizophrenic patients improved. Since the mental improvement might be ascribed in part to relief from a secondary toxic psychosis caused by the tuberculosis, the decision was made to reinvestigate the problem in a group of schizophrenic patients in whom there was no tuberculosis. In a pilot study, the drug was given to 30 patients with mild, early schizophrenia and to a group of 15 chronic schizophrenics. This report is based on the group of 30 patients with early schizophrenia. Most of these patients had been hospitalized for several months. Some had received electric shock or insulin shock therapy or both, and psychotherapy had been tried in all with disappointing results. The dosage of isoniazid ranged from 150 to 600 mg., with the majority of patients receiving 300 mg. daily. During the fifth and sixth week of the study, the drug was replaced by an inert placebo. The drug was again resumed in the seventh week and continued for a total period of four months. Two weeks after the first group of patients received isoniazid, an attitude of therapeutic optimism permeated the ward. The patients' optimism could be attributed to at least five features. First, the euphorizing, stimulating effect of isoniazid, which had been reported in the studies on tuberculosis, was felt by some of the patients. Two of the more experienced subjects compared the lift from isoniazid to that from taking benzedrine. The second characteristic change was an increased sociability. A wave of organizational and social activity sprang up. Small groups of patients organized games, outings, artistic and recreational enterprises. The organizers were mostly patients receiving the drug. A third distinct effect was a reduction of fear. A fourth feature was a tendency to somnolence and a reduction of insomnia in many patients. The livening of the group of patients was produced by the infectious optimism of a small minority whose symptoms were relieved soon after the institution of medication. The majority were objectively uninfluenced. Twenty-one of the group of 30 were largely unaffected. Of the nine subjects who showed change, only five experienced a definite relief of symptoms. All changes evoked by the drug ceased within a few days during the placebo phase. Fears, compulsions, insomnia, depression, disinterest, and withdrawal returned when the drug was withheld. When the active substance was resumed, attention was focused on the five patients who showed initial improvement, but this time relief developed slowly. In the fourth month, all patients were relapsing. Although isoniazid cannot be endorsed at present as an effective clinical tool in the psychiatric treatment of schizophrenia, it is felt that its neurotropic qualities deserve further investigation.

Treatment of Spastic Paraplegia by Selective Spinal Cordectomy. C. S. MacCarty. J. Neurosurg. **11**:539-545 (Nov.) 1954 [Springfield, Ill.].

MacCarty says that the idea of removing large segments of the spinal cord first occurred to him in 1948, when a thoracic, lumbar, and sacral spinal cordectomy was accomplished in an effort to eradicate a highly malignant glioma of the spinal cord. It became apparent that removal of extensive portions of the spinal cord is compatible with life but that certain alterations in physiology occur. Gynecomastia, hypoproteinemia, decreased metabolic rate, and manifestations of demasculinization occurred. Efforts to combat these changes were outlined previously. Spinal cordectomy below the cervical segments is not only compatible with life, but it will relieve spasticity and will produce a flaccid bladder that can contract. Also, intestinal function is little altered when a transected spinal cord is converted to a resected spinal cord. The author presents the histories of four patients who sustained trauma of the spinal cord with resultant paraplegia and spasticity. They were treated by removal of segments of the spinal cord distal to the injuries. The removal of a portion or all of the malfunctioning part of the spinal cord is likened to removal of an atrophic cerebral hemisphere in patients suffering from infantile hemiplegia and uncontrolled convulsions. The selectivity of the procedure is stressed. In high thoracic cord injuries, it is suggested that an isolated segment be left in place to maintain reflex abdominal tone in the hope of improving urinary evacuation. In low thoracic cord injuries, the lumbar and sacral portions of the cord can be accurately removed.

Some Complications of Vertebral Angiography. O. Sugar and P. C. Bucy. J. Neurosurg. **11**:607-615 (Nov.) 1954 [Springfield, Ill.].

Sugar and Bucy feel that reports of complications resulting from cerebral angiography are valuable in trying to set standards for selection of patients for this diagnostic procedure. They present the histories of three patients. Death followed vertebral angiography in two patients, 48 and 69 years of age, in whom autopsy showed severe arteriosclerosis. In the third patient, aged 57 years, recovery occurred after the procedure had caused marked increase in neurological symptoms. In each patient, there were headaches, homonymous hemianopsia, and other neurological findings, without evidence of raised intracranial pressure. In each instance, the angiograms revealed evidence of arteriosclerosis of the vertebral-basilar system. The authors feel that probably the most important lesson to be learned (or relearned) from these cases is that cerebral angiography is not without hazard. In commenting on measures by which the incidence of complications of vertebral angiography might be reduced, the authors say that it does appear that the smaller the total dose of contrast medium used, and the smaller the individual doses for each injection, the less numerous are the complications. However, serious complications have been reported with one 10 cc. injection of iodopyracet (Diodrast) and with only 9 cc. of iodopyracet (Umbradil). Experimental evidence indicates that a relatively long wait between successive

injections is safer than making injections in rapid succession. A minimum wait of 10 minutes has been suggested, during which time it should be possible to examine films resulting from previous injections. If there are signs of vascular occlusion, arteriosclerosis, or marked delays in circulation through the brain, it would be wise to discontinue the procedure. It is difficult to select patients for angiography who do not have arteriosclerosis, for many patients with tumors or vascular anomalies also have arteriosclerosis. Age is of little value as a criterion. The authors feel that perhaps it would be wise to be especially cautious in patients with homonymous hemianopsia whose spinal fluid pressure and roentgenograms of the skull are normal. If dye study still appears indicated, and carotid angiography is done without revealing the lesion, it might be best to wait for a few days before doing the vertebral angiogram. In this way, one might avoid impairing the communications from the carotid to the basilar system and permit collateral flow in case there should be vascular insufficiency in the vertebral-basilar system.

Vitamin B_{12} for Treatment of Alcoholic Delirium. K. R. Bacher. Deutsche med. Wchnschr. **79:**1901-1903 (Dec. 17) 1954 (In German) [Stuttgart, Germany].

Of seven men with alcoholic delirium who within 18 months were admitted to the surgical department of the City Hospital of Neustadt a. d. Weinstrasse, Germany, the delirium tremens occurred in five within two to four days after an accident and in three within one to three days after a surgical intervention; one patient had two attacks of delirium, one after an accident in which he injured his tibia and the other after surgical intervention for pseudarthrosis of the tibia. While delirium tremens usually results from abuse of whiskey for several years, never from that of beer alone, and only in exceptional cases from that of wine, the eight men came from a wine-growing rural district, where wine, and particularly the "home-drink," belong to the daily food. Delirium thus does not appear to be so extremely rare in wine drinkers as some workers had assumed. In all seven patients it was elicited by an exciting cause, either accidental injury or surgical trauma. The prognosis of this "complicated" delirium is less favorable than that without an exciting cause. The delirium has been considered as a toxic condition resulting from impairment of liver function associated with the continued abuse of alcohol, and treatment, therefore, should be directed at restoring liver function to normal. Consequently, the first three of the author's patients were given Decholin, a proprietary preparation of dehydrocholic acid, intravenously. The first patient died on the seventh day of this treatment. Decholin also was ineffective in the second and third patient, but in both the delirium subsided after the intramuscular administration of Berubi-1000 (a proprietary preparation of vitamin B_{12}, 1,000 gamma). Vitamin B_{12} was given a therapeutic trial because of the favorable results obtained with it by Lereboullet, Pluvinage and Menof [*J. A. M. A.* **148:**667 (Feb. 23) 1952; *J. A. M. A.* **147:**791 (Oct. 20) 1951] in the polyneuritides associated with chronic alcoholism. Of the remaining four patients who were given one to four injections of vitamin B_{12}, 1,000 gamma, the delirium subsided within 48 hours in three. The fourth patient died, but he was cachectic and had been subjected to gastrectomy for carcinoma of the stomach. Vitamin B_{12} should be given prophylactically in single doses of 48 to 333 gamma to patients running the risk of delirium tremens, i. e., those taking wine regularly, with albumin in the urine, abnormal reaction to liver function tests, urobilinogenuria, and indicanemia, when they are subjected to surgical treatment or treated for an accidental injury.

Cerebral Atrophy Due to Alcoholism in Young Adults. B. Tumarkin, J. D. Wilson and G. Snyder. U. S. Armed Forces M. J. **6:**67-74 (Jan.) 1955 [Washington, D. C.].

This study deals with seven enlisted men who ranged in age from 25 to 38 years and had been using alcoholic beverages for from 7 to 17 years. Intolerance to intoxicating beverages had developed in each of these patients relatively recently. With the exception of one patient, who was admitted with questionable epilepsy, each was hospitalized because of inability to perform his duties adequately. All were admitted to the neuropsychiatric service and subjected to physical, psychiatric, neurological, and psychological examinations. The histories of these patients failed to reveal any evidence of congenital abnormality, significant trauma, infection such as encephalitis, or exposure to toxic agents such as carbon monoxide. The age of the patients ruled out such conditions as Alzheimer's sclerosis or senile changes. There was no evidence of arteriosclerosis and no clinical signs of polyserositis (Pick's disease). The only common denominator in these cases was the history of excessive intake of intoxicating beverages over a period of many years. There were no gross pathological findings on clinical, neurological, or psychiatric examination. The digit-span and digit-symbol subtests of the Wechsler-Bellevue intelligence scale revealed significant impairment. Electroencephalograms disclosed abnormal findings consisting of bilateral, high-amplitude, slow waves (three to four per second) in the frontal regions and in some of the parieto-occipital areas as well. Diffuse cortical and subcortical atrophy, particularly in the parietal region, was found on pneumoencephalography. Available evidence indicates that during acute alcoholic intoxication there is edema, which leads to hypoxia; also, intoxication produces direct toxic changes in the cells of the cortex, with interference in the respiratory and metabolic processes. These changes are largely reversible, but some damage is permanent and leads to a loss of cells and nerve fibers, primarily in parietal and frontal regions. The authors feel that the atrophy that they were able to demonstrate might explain the fact that psychotherapy presents difficulties in patients with chronic alcoholism.

PEDIATRICS

Treatment of Tuberculous Meningitis Without Intrathecal Therapy. J. M. Smellie. Lancet **2:**1091-1093 (Nov. 27) 1954 [London, England].

Smellie gave patients with tuberculous meningitis only intramuscular injections of streptomycin and isoniazid by mouth. The 15 children treated since September, 1952, according to this plan were not selected but comprised all the cases of tuberculous meningitis under Smellie's care in the last two years. Most of these children received treatments much earlier than in the past, and this has improved the prognosis. Illness before admission had lasted from four days to five weeks. Streptomycin (20 mg. per pound of body weight daily) was given in two doses every 12 hours by intramuscular injection. Isoniazid (4 mg. per pound of body weight daily) was given in four doses every six hours by mouth. The isoniazid was given daily for five months or sometimes a little longer. As confidence in the success of the treatment increased, streptomycin was given daily for only three months and then twice weekly for two. Up to now, with a follow-up period of from 5 to 25 months after teratment started, 13 of 15 children are showing a satisfactory result. One of the remaining two has died, and one is physically and mentally retarded. The one infant included in this series, who was 11 months old on admission, after an initial stormy and perturbing clinical course is now (four months later) making satisfactory progress. Several case histories are presented to illustrate points of particular interest. Except in one case, no untoward side-reactions or toxic manifestations were observed that could be attributable to isoniazid. Isoniazid usually appears to promote a feeling of well-being and contentment. This is in striking contrast to the nervous, apprehensive, and worrying appearance and behavior such patients usually showed before isoniazid was used. In many of these cases the temperature subsided relatively slowly, taking in a few cases up to five or six weeks to return to normal, but this does not seem to have been to the disadvantage of the patient. Further evidence in favor of the use of orally given isoniazid in tuberculous meningitis has been provided by other investigators. The author concludes that if further experience confirms that, when isoniazid is given, intramuscularly given streptomycin can safely be substituted for intrathecally given streptomycin, treatment will be much simpler, and the young patients will be saved much pain and other suffering.

Asthma in Children. T. Walther. Nord. med. **52:**1571-1577 (Nov. 11) 1954 (In Norwegian) [Stockholm, Sweden].

Asthma is a common disease among children in Scandinavia. The general allergic predisposition, not a special form of allergy, is hereditary. Eczema pruriginosum in infancy and/or early childhood seems to have a decisive influence on the frequency and time of onset of the asthma, perhaps also on the clinical forms. Most cases in the first three or four years of life are of the type known as asthmatic bronchitis. Diagnostic difficulties arise when asthma is complicated with acute inflammation of the respiratory tract. The roentgenological changes are few in comparison to the grave picture. In differential diagnosis, asthma, asthma with beginning pneumonia, and possibly asthma with atelectasis are generally considered. In such cases antiasthmatic treatment should be combined with adequate chemotherapy and antibiotics as early as possible. In most cases of asthma, adenotomy and tonsillectomy should be avoided; the tonsillar hyperplasia and adenoid vegetations are usually secondary to the asthmatic condition. Detailed allergic family and personal history are valuable for the diagnosis. More special allergic diagnosis is based on two supplementary methods, the cutaneous-intracutaneous tests and provocation and exposition tests. False positive tests are perhaps more frequent with the intracutaneous technique than with the cutaneous. Treatment of the acute attacks is combined with treatment of the allergic condition responsible for the asthma. This is directed to removal of the causative allergens from the patient's diet, home, and milieu and demands patience and perseverance on the part of patient, family, and physician. Treatment of common asthma with antihistamines sometimes gives good results if the cause is pollen allergy. In long-continued and stubborn attacks of the type of status asthmaticus, cortisone and corticotropin (ACTH) may be applied to bring the patient out of a threatening condition as quickly as possible. In most cases one larger and two smaller doses at from four to six hour intervals give good results within the first 24 hours. There is at present no reason for routine use of cortisone or corticotropin in common asthmatic difficulty in children.

Role of Endamoeba Histolytica and Trichuris Trichiura in Bloody Diarrhea of Children in Puerto Rico. B. T. Garfinkel, M. Alvarez and R. Oseasohn. Am. J. Trop. Med. **3:**985-987 (Nov.) 1954 [Baltimore].

Amebic dysentery is generally the diagnosis when increased frequency and fluidity of stools is associated with the passage of blood, mucus, and actively motile trophozoites of Endamoeba histolytica. The failure of a small group of children having this syndrome to show uniform improvement when amebic infection was eradicated, and the observation that the signs, symptoms, and therapeutic response correlated with the simultaneous overwhelming infection with Trichuris trichiura induced Garfinkel and associates to make studies on 16 children with bloody diarrhea whose stools showed the presence of both E. histolytica and T. trichiura. All had a history of six to ten bloody stools a day for six months to two years. These children were admitted to three study groups chosen at random. One group received 1 gm. of oxytetracycline daily for 10 days as an agent of proved antiamebic value; the second group was given three enemas of 0.3% solution of hexylresorcinol in 10% acacia at three day intervals, a technique that has reduced total worn burden without demonstrable antiamebic action; while the third group received only supportive therapy and routine hospital care. Proctoscopy was performed prior to and after completion of treatment. Stools of all children were examined daily for eggs, parasites, and bacterial pathogens. At the completion of therapy blood was still present in the stool of only one patient who had been treated with hexylresorcinol; on the other hand, despite the disappearance of the E. histolytica, blood persisted in three patients who had been treated with oxytetracycline; in the control group the blood cleared from two patients, while E. histolytica persisted. Decrease in frequency of stools and diminution of their fluidity occurred despite the persistence of E. histolytica in four patients treated with hexylresorcinol. The authors conclude that the persistence of symptoms in several children despite the eradication of E. histolytica supports the view that study of dynamic interparasitic relationships holds the key to the pathogenesis of amebic infection. At any rate, in a given case, the observation of motile E. histolytica with ingested blood cells should not end the search for the causation of the patient's bloody diarrhea.

Allergy and Immunity in Infants Vaccinated with Massive Doses of BCG "per Os" by De Assis' Method. E. Kraus and J. Dvorak. Presse méd. **62:**1680-1682 (Dec.4) 1954 (In French) [Paris, France].

Allergy to tuberculin should not be confused with true immunity in a person vaccinated against tuberculosis. A positive BCG test is indicative of immunity; combined with a negative tuberculin test, it is the most desirable reaction. The authors consider persons with positive tuberculin reactions and negative BCG test reactions susceptible to tuberculosis. They have had a large experience with vaccination of infants with orally administered massive doses of the Moreau strain of BCG. They have seen no reactions or complications with this method (De Assis'). Initial vaccination with 100 mg. of Moreau BCG and revaccinations up to the sixth month of life definitely increase the percentage of positive reactions to tuberculin. This would seem to indicate that infants who were tuberculin-negative before initial vaccination now have an allergy to it that is below the threshold. After revaccination there is an increase in the number of subjects reacting positively to the BCG test; it appears that in the ones who had negative reactions after their initial vaccination a below-threshold immunity has developed. Among infants revaccinated every month with 100 mg. of BCG, the percentage of those with positive reactions to tuberculin decreases to 30% (with the Mantoux 3 test) in those vaccinated five times in succession, while the percentage of subjects with acquired immunity rises to 100, that is, they all have positive BCG test. There are no complications attendant to the use of these repeated vaccinations. The children gain weight normally and have no more minor infections and ailments than nonvaccinated children or children vaccinated intradermally.

The Diagnosis of Aminoaciduria in Childhood: Cystine Storage Disease and Cystine-Lysinuria. J. W. Perry, A. E. Moore and W. B. Macdonald. M. J. Australia **2:**812-816 (Nov. 20) 1954 [Sydney, Australia].

According to Perry and associates the term aminoaciduria is reserved for the pathological conditions in which aminoacids in excess of normal are excreted in the urine. The mechanisms of aminoaciduria suggested by Dent in 1947 are twofold, the "overflow" type caused by the presence of excess aminoacids in the blood and the "renal" type, in which there is a loss of aminoacids in the urine without an elevation of blood amino nitrogen level. The authors observed increased aminoacid excretion in the urine of two children who became jaundiced during an attack of severe enterocolitis and in the urine of a patient with severe second and third degree burns. Detailed clinical histories of these patients are presented. The authors feel that in the first two cases the diagnosis of cystine storage disease is established beyond a doubt. In the third patient the evidence in support of this diagnosis is less complete, but it is thought that a diagnosis of cystine storage disease is likely after consideration of the history, signs of renal damage, hypoelectrolytemia, corneal opacity, and general aminoaciduria. In commenting on the nomenclature, the authors point out that Lignac-Fanconi disease is a synonym for cystine storage disease. Cystine storage, general aminoaciduria, and dwarfing are of greatest importance in establishing the diagnosis. The diagnosis should be suspected in all stunted children whose dwarfing is not obviously the result of other causes. The authors feel that the whole story of mineral and protein metabolism in cystine storage disease is incomplete, but paper partition chromatography has provided another important technique to apply to the problem of failure to thrive. Cystine-lysinuria received its name from the occasional occurrenc of cystine stones in the urinary tract. Chromatographic examination of the urine reveals an increased excretion in the urine of both cystine and lysine and occasionally arginine. It is an hereditary condition present from birth and consistent with normal health apart from a tendency to form stones. The aminoacid pattern of the urine is fairly characteristic and does not show

the general aminoaciduria of cystine storage disease. Crystals of cystine may be found in the urine. The authors present the history of a patient with cystine-lysinuria. Since stones occur with greater frequency in acid urine, he is taking a mixture to maintain the alkalinity of his urine. Experience with paper partition chromatography has convinced the authors that it is an essential technique in the investigation of a number of childhood conditions, most of which enter into the differential diagnosis of failure to thrive.

OTOLARYNGOLOGY

Massive Lung Collapse Following Tonsillectomy and Adenoidectomy. R. W. Bailie and W. E. B. Scott. J. Laryng. & Otol. 68:834-841 (Dec.) 1954 [London, England].

The 8-year-old boy whose case is reported was subjected to adenoidectomy and tonsillectomy under general anesthesia. By the evening of the day after the operation the boy had pain in the epigastrium and the left side of his chest showed diminished movement and was slightly dull to percussion. There was some dry cough. Next day the child looked ill and in toxic condition, with a pyrexia of 103.4 F., pulse 144 beats per minute and respirations 40 per minute, but there was little cyanosis. X-ray examination of the chest showed opacity of the left lung field with displacement of the mediastinum to the left and elevation of the left diaphragm. These appearances are those of a massive collapse of the left lung, and this confirmed the clinical findings. The boy recovered, but about a month after the operation there was still some cough and also some mucopus in the nasal passages. Three months later the child was well and asymptomatic. In considering the cause of the collapse in this case, the main predisposing factor would appear to have been the upper respiratory tract infection that had been present for some time. Bronchoscopy should have been performed earlier, thus avoiding the onset of the pulmonary infection, which accounted for the delay in clinical response and in reexpansion of the atelectatic area. The course of this case seems to contraindicate the removal of tonsils and adenoids while a sinus infection is present, or at least while there are any signs of activity, but its rarity seems to negate such a suggestion.

Modern Concepts in the Management of Otitis Media in Infants and Children. W. W. Harrison. J. Tennessee M. A. 47:467-472 (Dec.) 1954 [Nashville, Tenn.].

Harrison feels that some of the "old-fashioned concepts" in the management of otitis media have been forgotten in the enthusiasm for the miraculous results of the antibiotics. The erroneous idea is prevalent that antibiotic therapy has rendered old-fashioned "drum-lancing" obsolete in almost all cases. During his first two years of private practice the author did not perform a myringotomy. A few bulging drums ruptured and drained spontaneously. These children seemed to recover more quickly, and the ear drums looked better afterward. They were not retracted and the child could hear better. After reading about conduction deafness as a result of incompletely resolved purulent otitis media with effusion, serous otitis media, and secretory otitis media, the author began to realize that while he had been curing infections, preventing complications such as mastoiditis, meningitis, and lateral sinus thrombosis, some of the children were left with defective hearing. He and an associate began to perform myringotomy on some of the worst looking ears and on those that failed to improve rapidly on antibiotic medication. Those opened cleared more rapidly and the drum resumed its normal translucency and shine in almost every instance. While the antibacterial agents have reduced the immediate complications of acute otitis media, their promiscuous use in upper respiratory infections in many instances camouflages completely an incipient middle ear infection. Patients with upper respiratory infections with even the faintest evidence of middle ear infections should have a follow-up examination to determine whether there is a collection of fluid in the middle ear. If such collections are not adequately drained, they become gelatinous and eventually form fibrous adhesions over the ossicles, thickening of the tympanic membrane, and, perhaps, stricture or stenosis of the eustachian tubes. It is much safer to incise the drum when in doubt than to leave secretions in a middle ear. On many occasions when the author performed myringotomy because he was convinced that fluid or pus was present no drainage was obtained. However, on peering through the incision gelatinous material could be seen in the middle ear, too thick to flow through. The use of a pneumatic type otoscope, under direct vision, with gentle positive and negative pressure with the bulb will usually draw the fluid through an adequate opening. If this procedure does not remove the material, the patient should be referred immediately to an otologist for further attempts at removal by aspiration, perhaps combined with eustachian catheterization. If this type of infection recurs once or twice without drainage, permanent deafness may result. The author discusses various problems connected with purulent ear infections, such as the causal organism, the selection of antibacterial agents, the reasons why infants and young children are more susceptible to ear infections, the role of adenoid tissue in the obstruction of the eustachian tube, nasal allergy, and the technique of myringotomy. The idea that "lancing the drum" will result in deafness is widespread in the public mind; however, with proper explanation of the situation and the need for the procedure, it is readily accepted.

THERAPEUTICS

On the Appearance in the Marrow of Iron Administered Intravenously. H. E. Hutchison, C. P. Lowther and W. D. Alexander. J. Clin. Path. 7:281-283 (Nov.) 1954 [London, England].

Intravenous administration of saccharated oxide of iron is now frequently used in the treatment of hypochromic anemia when either iron given by mouth is resisted or rapid improvement is especially important, as in pregnancy or before surgical operation. Hutchison and associates describe observations they made on the appearance of histologically demonstrable iron in the sternal marrow at different intervals after the intravenous administration of varying amounts of saccharated oxide of iron to patients with iron-deficiency anemia. In 20 patients the marrow was examined at different intervals after the administration of varying amounts of iron intravenously for hypochromic anemia. The appearance and distribution of the stainable iron found are thought to be accounted for by the phagocytic activities of the reticuloendothelial system. These findings confirm the supposition based on experiments with animals that saccharated oxide of iron given intravenously rapidly becomes deposited in the reticuloendothelial system. It is clear from the therapeutic responses that the patients subsequently showed that the iron was afterwards used. It is not known in what form precisely iron is taken up by developing erythroblasts for incorporation in the hemoglobin molecule, but there is evidence from radioiron studies both in vivo and in tissue culture work that the iron from simple ferric salts conjugated with globulin can quickly be synthesized into hemoglobin.

Ten Years of Governmental Control of BCG Vaccines. G. Eissner. Deutsche med. Wchnschr. 79:1821-1824 (Dec. 3) 1954 (In German) [Stuttgart, Germany].

Eissner of the Paul-Ehrlich Institute in Frankfurt on the Main, states that in Germany BCG vaccines and the BCG strains that are used for their production have been subject to governmental control for nearly 10 years. This supervision is concerned with establishing the harmlessness of the BCG strains and their capacity to produce in guinea pigs an increase in resistance against infection with virulent tubercle bacilli, as well as with the examination of the bacterial purity of the vaccines and with the viability of the organisms contained therein. Beyond that the pharmaceutical house preparing the vaccine is obliged to adhere to the working instructions and the protective regulations governing BCG laboratories. The

years during which supervision has been enforced have demonstrated that the BCG strains used for the preparation of the vaccines are sufficiently avirulent. The immunizing efficacy of the examined strains can be demonstrated only to the extent that the life of the experimental animals, which after BCG vaccination were inoculated with virulent tubercle bacilli, was somewhat prolonged, whereas a generalization of the tuberculous infection cannot be prevented. The BCG vaccines available now do not produce in experimental animals a protection against tuberculous infection that is comparable with the immunity obtainable in other infectious diseases. Even with further improvements in the methods of examination, the control of BCG vaccines will still be only a sort of supervision, because actual "testing," which fulfills the requirements that usually prevail, will become possible only after it has been objectively clarified whether the BCG preparations now available actually protect human beings against infection with virulent tubercle bacilli and whether an experimental procedure can be developed that will permit the quantitative determination of their protective powers, as has long been available for other vaccines, such as those against diphtheria and tetanus.

Attempted Treatment with Triethylene Melamine. A.-L. Haga, C. Wasastjerna, H. Hortling and H. Teir. Finska läk.-sällsk. handl. **96**:151-170 (No. 2) 1953 (In Swedish) [Helsinki, Finland].

Treatment with triethylene melamine was tried in 27 cases. The reaction was favorable in three out of four cases of polycythemia. In three out of eight cases of chronic lymphatic leukemia the reaction was satisfactory, in two, less good, in three, unsatisfactory. No effect was seen in four cases of Hodgkin's disease, and a slight effect was seen in three cases. Brief remission occurred in one of two cases of chronic myeloid leukemia, and in one of two grave cases of acute leukemia there was an unsatisfactory, brief remission. The treatment had no effect in three cases of localized malignant tumors. One case of lymphatic blood reaction seemed to be favorably affected. Side-effects were frequent, the commonest being nausea, not especially marked. Various forms of cytopenia occurred. In one case there was thrombosis of the retinal artery, in another case herpes zoster after treatment ended. Autopsy was performed in eight cases. Necroses and scar formation in two cases of Hodgkin's disease might be interpreted as pathoanatomic evidence of favorable effect of triethylene melamine. Histological examination showed toxic injuries to the parenchymatous cells in the abdomen.

Severe Tetanus Treated for Several Weeks with Curare, "Hibernation," and Artificial Respiration. E. Rossi, A. Bodmer, M. Bettex and others. Schweiz. med. Wchnschr. **84**:1329-1331 (Nov. 27) 1954 (In German) [Basel, Switzerland].

A 13-year-old girl had injured her knee by slipping when she walked through the woods to school. Rigidity of the abdominal and back muscles and trismus occurred after an incubation period of six days. Immediately after admission to the hospital the patient was given 150,000 units of antitetanus serum intramuscularly and locally in the area of the wound during the first 24 hours. Penicillin was given daily in doses of 4,000,000 units for eight days; other antibiotics such as tetracycline (Achromycin), oxytetracycline (Terramycin), chlortetracycline (Aureomycin), erythromycin (Ilotycin), and sulfamethazine (Elkosin) were given later. Pantopon (alkaloids of opium) was given as a sedative. "Artificial hibernation" was practiced with a mixture of 1 cc. (25 mg.) of chlorpromazine (Largactil) (10-[γ-dimethylaminopropyl]-2-chlorophenothiazine hydrochloride), 1 cc. (25 mg.) of promethazine (Phenergan), 1 cc. (50 mg.) of a proprietary preparation of meperidine (Dolosal) hydrochloride, and 1 cc. of distilled water given every three hours. The wound was excised. The first convulsions occurred within an hour after the patient's admission, and her condition became worse within the next 12 hours; generalized convulsions occurred every few seconds at the slightest contact. After tracheotomy and intubation, tubocurarine chloride was administered intravenously and intramuscularly; on the first day injections were given every 5 to 15 minutes, and after several days the drug was given twice within one hour. The total dose of the curare preparation administered on the first day was 205 mg.: 285 mg. was given on the second day, and the highest total daily dose of 330 mg. was given on the fourth day. On the 18th day of this treatment 20 mg. of the drug still was given every five hours, and the same amount was given every eight hours on the 19th day. Two severe attacks of generalized convulsions that occurred at a short interval on this day required a temporary increase of the number of injections, and only at the 28th day of the treatment was curare discontinued. The child received a total dose of 4.335 gm. of tubocurarine chloride. Artificial respiration was carried out with the Engström respirator, a half-closed system by which active inspiration is effected through positive pressure and expiration through a suction regulator. The occurrence of two generalized severe convulsions on the 19th day of the treatment, when the dose of the drug had been reduced slightly, demonstrated that curarization had not been overdone. Unfavorable effects of the large doses of tubocurarine chloride were not observed. About one week was required for the restoration of coordinated breathing after the curare and artificial respiration had been discontinued. Several hours were required after the insertion of a speech-tube until the child learned to speak again. Complete recovery occurred. The authors believe that treatment with sedatives combined with artificial hibernation would not have prevented a fatal outcome in this severe case of tetanus. Hyperthermia could have become dangerous if hibernation had been omitted. While the relaxant presents a satisfactory means for the prevention of rigidity and spasms, the hibernation has an additional favorable effect by producing amnesia for the unpleasant period; this latter effect was clearly manifest in the authors' patient.

PATHOLOGY

Observations on the Pathology of Sjögren's Syndrome. B. S. Cardell and K. J. Gurling. J. Path. & Bact. **68**:137-146 (July) 1954 [Edinburgh, Scotland].

Sjögren's syndrome is now generally accepted to be a definite clinical entity. It occurs chiefly in women, the incidence figures in the literature ranging from 86 to 95%. It is rarely seen in persons under the age of 30 years. The manifestations of the fully developed syndrome include keratoconjunctivitis sicca; dryness of the mouth, nose, pharynx, and larynx; and intermittent swelling of the lacrimal and salivary glands, but individual patients usually do not show all these features. About two-thirds of the patients also have chronic polyarthritis of the rheumatoid type. Postmortem studies are described on three patients with Sjögren's syndrome who were extensively studied in life during the course of an investigation into the therapeutic value of cortisone and corticotropin. Two of the patients were women, aged 38 and 49, respectively, and one was a man, aged 73. Observations on these patients are compared with previously reported cases. The main pathological features seem to have two components: atrophy of certain glands, with consequent dryness of their associated mucosa, and rheumatoid arthritis. In the first component the essential lesion lies in the conjunctival, lacrimal, and salivary glands and the submucous glands of the respiratory and upper alimentary tract. In the earlier stages there are two main features: a predominantly lymphocytic cellular infiltration producing glandular enlargement, and parenchymal atrophy that results in impaired function. This picture may persist for several years. Eventually both parenchyma and cellular infiltrate disappear and are replaced by fibroadipose tissue. Dryness of the associated mucosa is a result of the glandular atrophy. In the cases cited there was no definite clinical or pathological evidence to suggest that the syndrome was due to infection, vitamin deficiency, or an endocrine abnormality. The relationship between the rheumatoid arthritis and the glandular lesion is also obscure. There is no direct relationship between the two, as there is no correlation between the duration and severity of the two lesions. Either may occur in the absence of the other. It seems possible that they have a common origin

and that they may both be manifestations of "collagen disease." This possibility receives some support from the observation that in Sjögren's syndrome the ocular symptoms may improve and the parotid swellings regress temporarily with cortisone and corticotropin therapy.

The Relationship Between Muscle Damage and the Aschoff Cell in Rheumatic Carditis. B. Ruebner. J. Path. & Bact. 68:101-107 (July) 1954 [Edinburgh, Scotland].

This investigation was undertaken to determine whether necrosis of muscle fibers occurs in rheumatic carditis and whether Aschoff cells originate from damaged muscle cells or from connective-tissue cells. The hearts in 32 cases of acute or subacute rheumatic carditis were examined for evidence of rheumatic myocarditis, i. e., for the presence of Aschoff bodies. Fifteen cases in which the heart showed only a few isolated Aschoff bodies or coexistent subacute bacterial endocarditis were excluded, and this report is concerned with the remaining 17 hearts. Usually two or three blocks of ventricular muscle were examined, or, when only one block was available, sections were cut at several different levels. All sections were stained with hematoxylin and eosin and many were stained with a number of other stains. The number of Aschoff bodies in the ventricular myocardium ranged from less than 1 up to 5 or 10 in each low-power field. Some were situated in the classical situation near the adventitia of small arteries. Others lay between muscle bundles, and of these some were deeply embedded in the interstitial connective tissue, while others were surrounded by little collagen and seemed to be situated close to or in the middle of a myocardial bundle, the fibers of which appeared broken, thinned, or indented by the Aschoff body. When the 11 cases with a clinical history of one year or less and only one clinical attack were compared with the six cases with a history of more than one year and more than one clinical attack, it appeared that the difference between the two groups was too great to be accounted for by chance. In the cases with a history of less than one year and without previous clinical attacks, almost half of the Aschoff bodies were situated close to cardiac muscle bundles. The underlying lesion seemed to be fibrinoid necrosis of the interstitial connective tissue, involving also the thin sarcolemma of the muscle fibers, with resulting damage to these fibers. In the group of cases with a clinical history of more than one year and with previous attacks of acute rheumatism, only 36 out of 215 (17%) Aschoff bodies were in close proximity to muscle fibers. The majority were embedded in interstitial connective tissue. Aschoff cells are often seen in situations in which there is no muscle, i. e., in the subepicardial tissue and in the valves. It is concluded that Aschoff cells are the response of the cardiac connective tissue to injury by rheumatic fever, and that they are not derived from cardiac muscle.

The Clinical Criteria of Intoxication and the Chemical Analysis of the Blood and the Urine: An Investigation of 100 Cases of Motor Vehicle Drivers Charged with Being Under the Influence of Alcohol. J. J. Prag. J. Forensic Med. 1:360-372 (Oct.-Dec.) 1954 [Cape Town, South Africa].

The diagnosis of borderline cases of being "under the influence of alcohol" has always been difficult; also, testimony in court on the clinical features alone is insufficient in the majority of cases. Thus this investigation attempts to correlate the clinical findings of drunkenness with the concentration of alcohol in the blood and the urine at the time. The work is based on the clinical and chemical features of 100 drivers of motor vehicles charged with having their faculties impaired by alcohol. The blood alcohol concentration was determined and in 75% of them the urine alcohol concentration. A clinical examination was made in every case. The subjects could be divided into three groups: the sober group, the intoxicated group without psychological abnormality, and the intoxicated group with psychological abnormality. For a diagnosis of intoxication, the subject had to have abnormality of motor function as determined by the gait, the Romberg sign, the finger-to-finger test and the test of picking up small objects from the floor, together with at least two of the following criteria: psychological abnormality (as determined by speech, behavior, memory, and orientation), flushing of the face, dilatation of the pupils, and an alcoholic odor of the breath. It was demonstrated that an alcoholic odor of the breath was of least importance, as it demonstrates only that alcohol has been drunk, but not how much. Flushing of the face is of little significance, as there is a great deal of individual variation. The pulse rate, evidence of sweating, and the blood pressure do not give any definite information about the alcoholic state. The dilatation of the pupils is valuable only when the blood alcohol concentration is between 0.10% and 0.30%, as it is absent above this figure and below 0.10%, being only present between these two limits. Psychological abnormality is of importance when it occurs in conjunction with motor abnormality. Motor abnormality is the most important of the clinical criteria of intoxication. A blood alcohol percentage above 0.15% is a strong indication of intoxication in all persons. Between 0.05% and 0.15% the chemical and clinical findings must be considered together and a decision made on the basis of the two. When the blood alcohol percentage is below 0.05% the person may be considered sober.

ANESTHESIA

Observations on the Use of the Opiate Antagonists Nalorphine and Levallorphan. J. E. Eckenhoff and L. W. Funderburg. Am. J. M. Sc. 228:546-553 (Nov.) 1954 [Philadelphia].

Nalorphine, an effective antidote to poisoning from opiates or opiate-like drugs, was given in doses of 20 mg. to six women between the ages of 23 and 51 to counteract depression produced by *dl*-alpha-1,3-dimethyl-4-phenyl-4-propinoxy-piperdine (Nisentil) hydrochloride or by metopon in these women when they received nitrous oxide anesthesia for minor operations. A variable analeptic effect of nalorphine was observed, being prominent in two, moderate in two, slight in one, and absent in one. Fifteen women between the ages of 23 and 58 who were given either 20 to 30 mg. of nalorphine or 5 to 15 mg. of levallorphan (3-hydroxy-N-allylmorphinan) to counteract depression produced by levorphan or morphine in these women when they received nitrous oxide anesthesia for minor operations. An antagonistic effect between nalorphine and levorphan was apparent. Small doses of levallorphan appeared to be as effective as or more effective than large doses in counteracting morphine depression. The response to the antiopiates appeared to depend on the degree of depression produced by the opiates; 2.5 mg. of levallorphan was more effective in combating depression produced by 45 mg. of morphine than was 10 mg. of levallorphan injected to counteract the effect resulting from 23 mg. of morphine. Levallorphan and nalorphine appear to be equally effective in counteracting depression produced either by morphine or levorphan. Choice between the two antagonists is difficult. Their effectiveness in counteracting minor degrees of depression is not predictable, nor was it always possible to combat unexpected depression resulting from a usual or relatively small dose of opiate. Nalorphine in doses of 10 or 15 mg. was administered as a preanesthetic drug to 27 patients scheduled for operation. For comparison, 35 patients were given either 5 or 10 mg. of morphine sulfate, 50 to 100 mg. of meperidine, or 1 to 2 cc. of isotonic sodium chloride solution, the dose depending on age, body weight, and physical condition. Results showed that nalorphine is a potent, depressant drug per se. Nalorphine in doses of 0.1 to 0.4 mg. was given via the umbilical cord vein to 26 newborn infants who showed depression suggestive of that produced by an overdose of opiates, namely, apnea, cyanosis, and poor muscle tone. The interval between delivery and injection of the drug varied from 3 to 22 minutes. Response was considered good to excellent in 23 infants and fair in 2 infants, while one infant did not respond. The intravenous administration of nalorphine to parturient women continued to be an effective method of combating neonatal depression from opiates given the mother. Nalorphine thus can be given to the mother prophylactically or to the infant therapeutically without regard to the anesthetic agent administered to the mother.

BOOK REVIEWS

Public Relations in Medical Practice. By James E. Bryan, Administrator, Medical-Surgical Plan of New Jersey. Foreword by Louis H. Bauer, M.D., F.A.C.P., Secretary-General, World Medical Association. Cloth. $5. Pp. 301. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1954.

Written primarily for physicians, this book is a concise and easily read presentation of how to develop a proper attitude toward patients, employees, the general public, and colleagues in the medical profession. It summarizes effectively the best thinking of the past 25 years on medicine and its public relations. In 10 well-organized chapters the author covers such subjects as the personal and financial relationship between doctor and patient; the ethical relationship between a physician and his colleagues; and the physician's connection with the local and state medical societies; the economics of prepaid medical care; and the physician and his hospital. In speaking of the experiences of patients who run the gamut of specialists in seeking a cure for some illusive ailment, Bryan decries the disconnectedness of the service. "It seems . . . ridiculous and intolerable that there is not some pattern of organization in medicine whereby all the tests and studies which three or four specialists have conducted would eventually be collated and reviewed by some physician capable of evaluating all the evidence, positive and negative, for which [the patient has] paid so dearly in time, dollars, discomfort—and loss of confidence."

As a partial solution to this problem, the book revives the concept of the general practitioner as a medical general manager. Another observation of more than passing interest is in connection with the withdrawal of some physicians from the main currents of social life. "The overwhelming, all-pervading fear of socialized medicine during the past twenty-five years has often manifested itself in a blind attachment to the status quo. . . . Too frequently, the physician has discredited his own truly generous motivations by an unreasoning denial of the facts of economic life around him, and by a stubborn mistrust of every proposal for ameliorating even the most obvious social needs. It is as though he were trying to withdraw into an unreal world of delusion and self-defense." Bryan has accumulated a wealth of knowledge on the socio-economic and public relations aspects of medical practice in his nearly 25 years of intimate association with the medical profession. In 1933 he became the first lay executive secretary of the Westchester (N. Y.) County Medical Society and currently is administrator of the New Jersey Blue Shield Plan. He has written numerous articles on medical subjects prior to the publication of this, his first book.

"Public Relations in Medical Practice" is a fine discussion of the subject. Every physician could profit by reading this book and applying its suggestions in his practice. As Dr. Louis H. Bauer, past president of the American Medical Association, stated in the foreword: "The Author has given us much food for thought. If every physician would give careful consideration to the problems presented herein, follow those suggestions with which he agrees, and suggest better solutions for those with which he disagrees, our public relations would soon reach a high level."

Maladies de l'intestin et du péritoine. Par Jean Rachet, André Busson et Charles Debray. Collection médico-chirurgicale à révision annuelle. Directeur général: Pasteur Vallery-Radot. Secrétaire général: Jean Hamburger. Cloth, loose-leaf. 9400 francs. Pp. 1077; XVII, with 143 illustrations. Editions médicales Flammarion, 22, rue de Vaugirard, Paris, VIe, France, 1954.

This treatise on diseases of the intestines and peritoneum represents one link in a chain of books that encompass nearly the entire field of medicine. It is bound in loose-leaf binders to permit insertion of annual supplements. This volume has been compiled by three authors. Due to the death of one, another finished the main part of the book dealing with diseases of the intestines, while lesions of the peritoneum have been described by the third writer. To facilitate the successive steps to be taken in arriving at a bedside diagnosis, the cause and characteristic lesions of each disease are not discussed as an entity but in connection with diagnostic methods, such as endoscopy, operative exploration, or biopsy. As the main purpose of the book is to serve as a diagnostic aid, discussion of therapy is confined to generalities. The material is divided into three main parts: the first discusses diseases of the small intestines and the colon, the second those of the rectum and the anus, and the third diseases of peritoneum. The introductory chapter, which deals with the examination of the patient, provides orientation as to the correct method of interrogation, physical signs, and supplementary diagnostic procedures, such as roentgenographic, chemical, microbiological, parasitic, and proctological examinations. The next chapter describes intestinal symptoms and is followed by others devoted to discussion of various lesions of the intestines and the peritoneum. The short bibliography attached to each chapter contains mostly references to French literature.

Even a sympathetic reviewer could not fail to deplore the authors' use of hot linseed compresses for diarrhea. Few enterologists will concur with the authors in considering diverticula functional lesions. The popular oxyuricides, piperazine, and oxytetracycline are not included in the list of anthelmintics to be used in the treatment of pinworm infection. Description of the treatment of megacolon does not mention Swenson's operation. Of 1,077 pages, only 33 are devoted to so important a subject as cancer of the rectum. Although injection treatment and monopolar electrocoagulation of hemorrhoids are outmoded, they are strongly recommended by the authors. These defects detract from the value of this book. The text, written in a pleasant style, contains a wealth of data, unfortunately poorly organized. The roentgenograms and colored plates form the outstanding feature of this work. The volume is printed on good paper in legible type and is provided with an adequate index. The cardboard jacket lined with linen does not seem sturdy enough for the heavy volume.

Morals and Medicine. The Moral Problems of: The Patient's Right to Know the Truth, Contraception, Artificial Insemination, Sterilization, Euthanasia. By Joseph Fletcher. With foreword by Karl Menninger, M.D. Cloth. $4.50. Pp. 243. Princeton University Press, Princeton, N. J., 1954.

That this book is less broad in scope than is suggested by its title is best indicated by the following excerpt from the foreword: "Suppose a man, while committing a murder, breaks a leg but escapes immediate capture and applies to a doctor for relief? Should the doctor treat him? . . . If an isolated doctor has ten patients, with enough serum to save five lives, which five lives shall he save? Or shall he run the risk of saving none by dividing it equally among them all? These are not the questions in medical ethics with which Dr. Fletcher deals in this book, but they hint at the recurring problem of loyalty which arises over and over in the life of every practicing physician." Dr. Fletcher, professor of pastoral theology and Christian ethics at the Episcopal Theological School in Cambridge, Mass., limits his discussion to the moral aspects of four procedures (contraception, sterilization, artificial insemination, and euthanasia) and to "medical diagnosis: our right to know the truth." His treatment of the moral aspects of these subjects is admittedly controversial.

Decrying the absence of a Protestant contribution to the ethics of medicine, Dr. Fletcher offers his construction of the ethical judgments that he believes are within the range and provision of Christian theology. He offers to show "that any absolute prohibition of these boons of medicine is morally unjustified, subversive of human dignity and spiritually oppressive." In an effort so important as this, one would reasonably hope for full consideration of the premises on which conclusions are predicated. Unfortunately, conclusions are stated and justified without such basic discussion. While it is said that "choice and responsibility are the very heart of ethics and the sine qua non

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

of a man's moral status" neither ethics nor morals are defined nor adequately discussed as concepts. Based on what is desirable from the social point of view rather than on the inherent rightness or wrongness of the act, the author arrives at the conclusions that, in general, it can be validly asserted that patients have the right to know medical facts about themselves; that artificial insemination is morally lawful; and that when there is good and sufficient cause to eliminate the possibility of reproduction against rational will "in order responsibly to fulfill the obligations of love" individuals are more than morally justified in resorting to sterilization procedures. He examines euthanasia according to "personal dimensions of morality" and finds three schools of thought favoring euthanasia: those who favor voluntary euthanasia, those who favor involuntary euthanasia for monstrosities at birth and mental defectives; and those who favor involuntary euthanasia for all who are a burden on society. He concludes that "principles of right based upon selfhood and moral being favor" voluntary euthanasia. According to his "personal dimension" the issue is not one of life or death, but what kind of death. The discussion of contraception is not so much a discussion of morality or ethics as it appears to be a criticism and ridicule of the position of the Roman Catholic Church. Such treatment fails to establish a positive view and is of little practical value to one who desires to consider the basic moral principles underlying the use of the procedure. In the opinion of the reviewer, the book cannot be said to be a helpful reference to the physician who wishes to resolve problems of conscience and apply morals in medicine.

Röntgenologie: Einschliesslich Kontrastmethoden. Bearbeitet von Erik Lindgren. Band II, Handbuch der Neurochirurgie, herausgegeben von H. Olivecrona und W. Tönnis. Cloth. 122.50 marks; to subscribers, 98 marks. Pp. 296, with 274 illustrations. Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1954.

This is the first volume of this seven volume handbook to appear. Because of the excellence of Swedish roentgenology in general and of Swedish x-ray studies of the skull and central nervous system in particular this volume had been awaited with great anticipation. The text is clear and concise, and the illustrations are for the most part well reproduced, but the book is incomplete. Many subjects that should have been included are not dealt with at all, and others are discussed inadequately. Many of the illustrations should have been more completely labeled, or more line drawings should have been supplied with the reproduction of the roentgenograms. The legends of many of the illustrations are incomplete. This inadequacy is not confined to any one division of roentgenography, but it is true of the discussion of the normal skull, unusual variations, pneumoencephalography, ventriculography, cerebral angiography, roentgenography of the spine, and myelography. The bibliography, like most German bibliographies, suffers seriously from having the entries arranged in continuity, one after the other, rather than in having them arranged with the authors' names in columns as is the usual custom.

Surgery of the Caecum and Colon. By Stanley Aylett, M.B.E., M.B., B.S., Surgeon, Westminster Hospital Teaching Group (Gordon Hospital), London. Cloth. $9. Pp. 295, with 142 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Place, Edinburgh 1, Scotland, 1954.

The author has drawn from the experience of his colleagues and associates at the Gordon Hospital, London, in the preparation of this reference book. The book deals particularly with the manner in which lesions of the cecum and colon are treated by British surgeons. Although it is stated that the purpose of the book is to fill a hiatus, which previously had not been covered, this is a moot question. The point of view, as presented by the author, is somewhat provincial. The section dealing with anatomy is succinct, well stated, and clearly illustrated. The lesions encountered in these areas are ably discussed. The illustrations in color and black and white are well placed and have excellent descriptive legends. A brief bibliography follows each chapter. A statistical analysis of the results of operation has unfortunately not been included. The book is recommended as a reference work for the resident surgeon and postgraduate student, rather than as a manual that would be referred to by surgeons actively engaged in clinical surgery.

Surgery of the Elbow. By Frederick M. Smith, M.D., Associate Professor of Clinical Orthopedic Surgery, Columbia University, New York City. Cloth. $10.75. Pp. 340, with 154 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1954.

The elbow is one of the more complex joints. Books have been written about the shoulder, the hip, and the spine, but this appears to be the first complete text concerned with the injuries and diseases of the elbow. Twenty-one of the 24 chapters are concerned with the anatomy of the elbow region, pathology of fractures of the elbow, and traumatic lesions such as fractures and dislocations. The final three chapters deal with loose bodies, bursitis, arthritis, and operations on the elbow joint. This useful book is well organized, well written, and well illustrated. Many of the illustrations are line drawings. Orthopedic surgeons and others who are interested in trauma will wish to add this monograph to their library.

Menstruation und innere Medizin. Von Dozent Dr. med. habil. Friedrich-Horst Schulz, Oberarzt der medizinischen Universitätsklinik Leipzig. Unter Mitarbeit von Dr. med. H. Knobloch, wiss. Assistent der medizinischen Universitätsklinik Leipzig. Cloth. 20 marks. Pp. 219, with 122 illustrations. Georg Thieme, Hainstrasse 17-19 Aufg. C, Leipzig C 1, Germany, 1954.

An astonishing wealth of facts about menstruation as related to health and disease is packed into this remarkable book. An introductory part summarizes the physiology and pathology of menstruation and the composition of the menstrual discharge. The second part discusses the effects of the adrenarche, the menarche, menstruation, and the menopause on the various organ systems and functional centers of the body. This section in particular contains an immense amount of up-to-date information about the changes in the blood, circulatory system, metabolism and nutritional status, ductless glands, musculature, nervous system, skin, mucosas, etc. The third part takes up seriatim the degenerative and infectious diseases whose onset is affected or whose symptoms are modified by menstruation. The fourth part discusses the effects of drugs, especially hormones, on the menstrual cycle. The author notes that every disease that has any significant relation to menstruation is likely to be affected, favorably or otherwise, by the administration of hormones, especially the sex hormones. In the light of this consideration, his concluding remarks on the dangers of estrogenic hormone therapy might well be extended. The style is readable, the illustrations are good, and the diagrams are well drawn. There is an author index. The references include recent publications from both Europe and the Americas. This book merits the attention of internists, gynecologists, and endocrinologists.

Prerequisites of Good Teaching & Other Essays. By Dr. Ernest Sachs, Research Associate, Surgery and Medical History, Yale University, New Haven, Conn. Cloth. $2.50. Pp. 118. The Shoe String Press, 51 Caroline St., Hamden, Conn., 1954.

This small book contains a number of short, engaging essays on a variety of themes that have interested the medical world for many years. The author, who has taught more than 2,500 medical students at one institution during an active teaching career extending over 35 years, has the fortunate faculty of coming to a point quickly and wisely, without losing the reader in a labyrinth of circumlocutions. What he has to say about the prerequisites of good teaching, the pros and cons of private practice versus full-time, the question of fees, and the case that has not been recognized and is diagnosed too late is worth any physician's reading time. This book is recommended.

The History and Conquest of Common Diseases. Edited by Walter R. Bett, M.R.C.S., L.R.C.P., F.R.S.L. Cloth. $4. Pp. 334. University of Oklahoma Press, Norman, 1954

This book consists of 17 chapters, each dealing with the history and conquest of a common disease. A number of competent contributors comment illuminatingly on such subjects as acute communicable diseases, influenza and pneumonia, rheumatism and arthritis, heart disease, epilepsy, diseases of the endocrine glands, tuberculosis and the venereal diseases, cancer, and malingering. Although this book was written mainly for patients, it should also appeal to many members of the medical profession.

Animal Agents and Vectors of Human Disease. By Ernest Carroll Faust, M.A., Ph.D., and William Vincent Professor of Tropical Diseases and Hygiene and Head, Division of Parasitology, Department of Tropical Medicine and Public Health, Tulane University of Louisiana, New Orleans. Cloth. $9.75. Pp. 660, with 225 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

This first edition aims at a broad coverage of the cause, epidemiology, pathogenesis, symptoms, diagnosis, treatment, and control of the diseases discussed. It should be of use to the zoologist, epidemiologist, pathologist, clinician, clinical laboratory technician, and public health worker. Several valuable synopses are presented in tabular form in the section on general orientation. This section is followed by sections on protozoa, roundworms, tapeworms, flukes, arthropods, and other animal forms. The final section is devoted to technical aids. Each chapter has a summary and a list of pertinent references. The book is well illustrated, many of the drawings being by the author. One of the illustrations of amebas is in color. It would have added to the value of the text if the plates of malarial plasmodia had also been in color. Although the author usually uses the generic names of drugs giving the proprietary names in parentheses, he has for some unaccountable reason reversed this process for oxytetracycline and chlortetracycline in table 5 and throughout the rest of the text uses only the proprietary names for these drugs. There is an author index and a subject index.

Klinische Fehldiagnosen. Von Prof. Dr. M. Bürger, Direktor der med. Universitätsklinik Leipzig. Second edition. Cloth. $14.15; 59.40 marks. Pp. 550, with 214 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O, Germany; [agent for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16], 1954.

This book is primarily a collection of 209 case histories in which the initial diagnosis is contrasted with the verdict of the autopsy or other definitive findings. The histories are presented with admirable clarity, especially as regards the results of blood cell counts and sternal punctures. There are excellent roentgenograms, some good illustrations in color, tabular information for help in differential diagnosis, and additional instructive comment in the text. The style is not too difficult. The book has both subject and author indexes. To find one flaw in 550 pages of exceptionally careful book-making seems ungrateful, but since cobalt and carbon monoxide are both poisons, it may be well to note that on page 483 Co should read CO. This error occurs in a section on occupational diseases that is otherwise uncommonly good. If the reader forms the habit of covering up the correct diagnosis until he has read the history and findings, the perusal of this book becomes both interesting and challenging. It is recommended to all diagnosticians and medical students who can read German.

A Ciba Foundation Symposium: The Chemical Structure of Proteins. Editors for Ciba Foundation: G. E. W. Wolstenholme, O.B.E., M.A., M.B., and Margaret P. Cameron, M.A., A.B.L.S. Cloth. $6. Pp. 222, with 49 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6, [1954].

This volume includes 16 papers given by specialists from Great Britain, France, Germany, and the United States. The papers deal chiefly with the isolation of pure proteins and peptides, the characterization of end-groups, and the specific splitting of particular bonds. Methods discussed for the determination of purity of proteins and peptides include countercurrent distribution and partition and ion-exchange chromatography. The procedures included for end-group determination are the methods of Sanger, the reaction with phenylisocyanate, the reduction of esters with lithium borohydride and lithium aluminum hydride, and the enzymatic splitting with amino- and carboxy-peptidases. Methods for specific bond splitting include the preparation of phenylthiohydantoins and certain enzymatic degradations. A number of chapters discuss the structure of specific proteins. The volume makes excellent reading for any person interested in protein chemistry. The subjects are presented clearly, and the discussions following the papers are very helpful. The book contains a short subject index.

Bread: The Chemistry and Nutrition of Flour and Bread with an Introduction to Their History and Technology. By Lord Horder, G.C.V.O., M.D., F.R.C.P., Medical Advisor to Minister of Food, Sir Charles Dodds, M.V.O., M.D., D.Sc., Courtauld Professor of Biochemistry in University of London, London, and T. Moran, C.B.E., D.Sc., Ph.D., Director of Research, Research Association of British Flour-Millers, Cereals Research Station, St. Albans, England. Cloth. 18s. Pp. 186, with 20 illustrations. Constable & Co., Ltd., 10-12 Orange St., Leicester Sq., London, W.C.2, England; Longmans, Green & Co., Inc., 215-219 Victoria St., Toronto 1, Canada, 1954.

In addition to an excellent discussion of the history of bread and a general description of the technology of flour milling and baking, the role of bread in nutrition is clearly presented in this book. The authors state in the conclusion that "bread is not only our most important foodstuff . . . it may also supply factors not yet identified which are necessary to health; the wheat grain is a storehouse of many nutrients, both known and unknown." This book is written primarily for persons with a scientific background, such as physicians, science teachers, social workers, and dietitians.

Doctors' Legacy: A Selection of Physicians' Letters, 1721-1954. Edited by Laurence Farmer, M.D. Foreword by Leona Baumgartner, M.D., Ph.D. Cloth. $3.50. Pp. 267. Harper & Brothers, 49 E. 33rd St., New York 16, 1955.

Letters have always provided a means for obtaining a revealing glimpse into the lives of their authors. This book contains an assembly of letters written by physicians over a period of 250 years, far removed from one another in time, place, and professional and social milieus. The letters deal with a variety of problems that have interested physicians for generations—medical practice, medical ethics, aspirations and disillusionments, discoveries and failures, economic and religious beliefs, hard work and intellectual rewards, and the ingratitude of some patients and of their willingness to pay heed to quacks. Many of the letters hold special historical interest, as for example, Thomas Huxley's on state interference in medicine, Anton Chekhov's on medicine and literature, Leslie Falk's on the development of penicillin, Freud's comment on his early work on the neuroses, Oliver Wendell Holmes' on the public acceptance of quackery, and Lord Berkeley Moynihan's on euthanasia. By giving the background of the letter writer or of the problem he discusses, the editor of this book has contributed greatly to its enjoyment.

Neuro-Ophthalmology. By Donald J. Lyle, B.S., M.D., F.A.C.S., Professor and Director of Department of Ophthalmology, College of Medicine, University of Cincinnati, Cincinnati. Second edition. Cloth. $17.50. Pp. 591, with 335 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1954.

This book exemplifies the fact that the ophthalmologist is rapidly acquiring more and more intimate knowledge of the anatomic and functional relationship of the eye to the central nervous system and the brain. Within this book, the dysfunctions and syndromes produced by intracranial diseases, tumors, vascular accidents, and congenital defects are crystallized. One of the highlights of the book is the chapter on the oculogyric system. It is interesting and informative. It broadens the concept of the ophthalmologist in his evaluation of strabismus and projects him beyond the "structural, mechanic, and anatomic affections of ocular motility" and introduces him to the added peripheral and infranuclear neurological causes with involvement of the nuclei in the brain stem, the nerve, or the neuromuscular synopses. The syndromes, which include eye symptoms, are profusely illustrated by the appearance of the patient, the anatomic location of the lesion, the structure involved, and the general and localizing symptoms found. More than one-half of the text is entirely new. The list of bibliographical references is extensive. The practicing ophthalmologist will now be able to get all of his references and practical information from this one source instead of dissipating his time and energies gleaning bits of information on neuro-ophthalmology from varied sources.

QUERIES AND MINOR NOTES

REACTIONS TO PROCAINE

TO THE EDITOR:—*For countless minor surgical procedures that are customarily performed in the office I use a solution of 1% procaine (Novocain) with epinephrine (Suprarenin) in a concentration of 1:100,000. I do not have an oxygen tank and mask apparatus. I fear the day when I might encounter a severe reaction in some patient. What prophylactic measures might be used to minimize this danger? If a patient has received procaine in the past for a tooth extraction with no untoward reaction, may he in the future have a toxic reaction? What is best given for a digital nerve block? Have there been many cases of severe ischemia after use of procaine with epinephrine following digital nerve block?*

M.D., New York.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—The prophylactic measures are: adequate history, smallest amount and concentration of local anesthetic agent spread over longest period of time, and avoidance of vascular areas. When one does a block, one must have on hand oxygen and a way of administering it or doing artificial respiration; one must have an intravenous setup, vasopressors, barbiturates, and a second person available on call. Reactions are dependent on the concentration of the agent in the blood, which, when sufficiently elevated, ultimately affects the heart and brain. Thus, the concentration of the 1 to 3 cc. of solution used for dental anesthesia, when used in larger volumes, may cause a reaction because of the much greater amount of drug available. Therefore, absence of a reaction to a regional block does not guarantee absolutely that a drug reaction might not occur if a greater amount of the local anesthetic were used. Digital block has the following hazards if there is a vascular insufficiency or infection: (1) the danger of trauma to the vessels by the needle, (2) the danger of the fluid injected causing pressure on the veins and thus diminishing blood flow, and (3) the danger that, if concentrations of epinephrine greater than 1:300,000 are used, vascular spasm may occur. Therefore, it might be wiser to use a metacarpal block, which is just as easy to perform and equally efficient, yet much safer. In all instances of infection and vascular insufficiency the vasoconstrictors would best be omitted. The agent used should be the least toxic and in the lowest concentration that will give adequate working conditions. Agents such as procaine, 1 to 2%; hexylcaine, 1%; lidocaine, 0.5 to 1%; and tetracaine, 0.1 to 0.25%, may be satisfactory for these types of blocks.

ANSWER.—The toxic dose of a solution of 1% procaine combined with 2 minims (0.12 ml.) of epinephrine per ounce (29.6 ml.) should not exceed 100 cc. when used for local infiltration anesthesia. The most important prophylactic measure to prevent systemic effect is to administer a barbiturate, such as 1 grain (60 mg.) of phenobarbital by mouth one-half hour before the injection of the procaine. The history of previous use of procaine in each patient is also important. If a relatively large amount of procaine is to be used it is important to keep the needle in constant motion to prevent injection of the solution into a vein. A concentration of 0.5% of procaine is very satisfactory when used with epinephrine and decreases chances of a toxic reaction. The prior use of procaine without reaction is no guarantee against subsequent reaction if procaine is used without the above precautions. There have not been many instances of severe ischemia following digital nerve block, but they have occurred, and it is wise practice to use the procaine without epinephrine and with a constrictor at the base of the finger to prevent rapid absorption of the procaine during the operation.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

KERATODERMIA

TO THE EDITOR:—*Please comment on keratosis plantaris. Is it definitely hereditary? Is there any carcinogenic element in it? Does it respond to any vitamin or hormone treatment?*

Albert M. Pfeffer, M.D., Cleveland.

ANSWER.—Keratodermia occurring early in life is usually an inherited manifestation with familial tendency. A careful history should indicate whether this type of keratodermia is present. There is little, if any, tendency toward the development of cancer. Internal treatment is probably without value. Symptoms may be minimized by lubrication during the day, using petrolatum (Vaseline) or ointment of hydroxylaminal fats (Aquaphor). If the involvement is diffuse and quite thick, one may apply a keratolytic ointment at night under a sock or other dressing. Salicylic acid is useful in petrolatum or in lead oleate (Diachylon) ointment, the concentration of the acid varying, depending on the degree of thickening present, between 5% and 25%. Keratolytic treatment should not be forced beyond the point of tolerance, nor should it be continued regularly after improvement has ceased. It is only a method of keeping the excess keratinized tissue at a minimum.

Many examples of keratodermia occur later in life and have nothing to do with inheritance. It may occur as a manifestation of syphilis, psoriasis, or various forms of eczema. At or near the climacteric it may manifest itself as a form of localized neurodermatitis associated with the emotional tensions and endocrine variations present at that age. Therapeutic or accidental administration of arsenic can cause keratodermia, usually punctate in nature, that is definitely a precancerous condition. While numerous other types of keratosis occur on the soles, those mentioned are among the commoner ones.

HOSPITALIZATION AFTER PARTURITION

TO THE EDITOR:—*The medical board of a recently opened hospital is contemplating a regulation requiring all postpartum patients to remain in the hospital for a minimum of five days. The hospital specialist staff consists largely of the medical-school, academically inclined type of physician, and I am led by them to believe that the usual postpartum hospital stay the country over is five to seven days, at least in patients delivered by obstetricians. The great majority of deliveries in this area are done by general practitioners. Aside from possible medico-legal problems, if any, is there any evidence that a five to seven day postpartum hospital stay is preferable to three? Do any hospital medical boards regulate by directive the length of stay in obstetric cases?* *M.D., New Jersey.*

ANSWER.—The vast majority of obstetricians are convinced of the benefits and harmlessness of early ambulation, but there is considerable difference of opinion concerning when to permit postpartum patients to leave the hospital. During the last war, for many reasons, chiefly lack of personnel and available beds, women were sent home at the end of 48 or 72 hours. Apparently little, if any, harm resulted from such a procedure. Today there is less need to force women to leave the hospital early to make room for others. In view of the fact that few women completely recover from the effects of even completely uncomplicated labor in less than four or five days, it is best to keep postpartum patients in the hospital a minimum of five full days before returning home. Many women have minor disturbances during the first five or six postpartum days that require the attention of and treatment by physicians and nurses. These disturbances include breast discomfort, pain from perineal sutures, hemorrhoids, more than normal lochia, and headaches, especially if

some form of spinal anesthesia has been used. For many women, especially those who have one or more children at home, the few postpartum days in the hospital supply a much-needed and well-deserved period of rest, even though rest is far from complete in a hospital. A woman who does not have competent assistance at home in the form of a full-time maid or nurse should surely not leave the hospital before her baby is a week old. If there is proper help at home a woman may leave the hospital after her baby is five days old, provided she can relax and rest at home. There are hospitals in which the medical board or the chief of the obstetric staff fixes the length of stay of puerperal patients. In at least one leading hospital in a large city there is a rule that a woman cannot be discharged from the hospital until her baby is eight days old.

MACERATION OF FETUS

To the Editor:—*When a healthy woman gives birth at term to a macerated fetus, is there any way of estimating the probable time between the death of the fetus and the onset of maceration?*

M.D., New Jersey.

Answer.—The postmortem autolytic changes responsible for the maceration of the skin and internal tissues of the fetus begin almost immediately after its death. If the fetus reached a gestational age of 6 months or more before its death, skin slipping may take place within a few hours. Skin slipping refers to the detachment of intact sheets of epidermis, spontaneously or on slight pressure, and is due either to softening of the cement substance that binds the epidermis to the dermis or to disintegration of the basal cell layer of the epidermis. Within 24 hours after death fluid may collect beneath the partially detached epidermis to produce bullas. In very young fetuses the epidermis is so thin that it may disintegrate completely as it macerates, with the result that neither slipping of intact sheets nor bulla formation is observed. Bulla formation in the skin of the fetus is not invariably a postmortem phenomenon. Potter (Pathology of the Fetus and the Newborn, Chicago, Year Book Publishers, Inc., 1952) calls attention to the fact that cutaneous bullas are observed occasionally in the living fetus. There is considerable variation in the rate at which maceration progresses after death. Bloodstained effusions may collect in the serous cavities of the fetus within two or three days after death. Within a few days the autolytic changes in the intestinal tract may lead to spontaneous rupture with discharge of meconium into the peritoneal cavity. After 7 to 10 days the hemoglobin of the fetus has denatured to such an extent that the skin takes on a brown hue. Putrefaction does not ordinarily occur unless the membranes have ruptured and contamination of the uterine cavity by bacteria has occurred. The eventual desiccation and shrinking of the fetus, with ultimate calcification, requires many weeks or months.

BLINDNESS FOLLOWING SMALLPOX

To the Editor:—*A patient, aged 33 years, had normal eyesight at birth, but after an attack of smallpox he completely lost his eyesight, having no perception of light. The cornea is opaque on both sides; movement of the eyes is normal. If there is any possibility of restoring sight to the patient, please let me know so that arrangements can be made to send him to the United States.*

Mohd Rafiq, M.D., Jhang Sadar, Pakistan.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—In this patient, it is highly likely that the retina or optic nerve is not intact and there is no treatment of avail.

Answer.—Assuming that the vision in this case was lost as a result of smallpox, the complete absence of light perception would indicate that the optic nerve is dead. There is no medical or surgical treatment that will restore vision in such a circumstance. Smallpox may produce ulceration of the cornea resulting in dense scarring with loss of vision, but if the optic nerve is viable some degree of vision may be restored by corneal transplants.

STREPTOCOCCIC SORE THROAT

To the Editor:—*What is the incidence of streptococcic sore throat? In 20-odd years of practice I am not sure that I have ever seen a true "strep throat." Is the diagnosis of streptococcic sore throat made out of ignorance, or is it made for the purpose of making the cure seem more heroic?*

Robert J. McIvor, M.D., Oakland, Calif.

Answer.—Acute pharyngitis may be caused by a variety of agents, including hemolytic streptococci. Clinically, it is not easy to differentiate a true hemolytic streptococcic pharyngitis from an infection by another pyogenic organism or by a virus, since the symptoms and the appearance of the throat may be very similar. When there are patches of exudate, a fever of over 100 F, and leukocytosis, the infection is probably due to hemolytic streptococci. When there is no exudate, but a fever and leukocytosis, the infection may be due to hemolytic streptococci. When there is little fever and absence of leukocytosis, the pharyngitis is most likely viral. The final proof of a "strep throat" is by culture, not always available or practical. The importance of differentiating a hemolytic streptococcic pharyngitis from pharyngitis due to other agents is that the serious systemic complications of acute rheumatic fever and acute glomerulonephritis may follow a hemolytic streptococcic pharyngitis but not other types of pharyngitis. These complications can be prevented by prompt administration of penicillin to patients with acute hemolytic streptococcic pharyngitis.

CORTICOTROPIN AND CORTISONE AND GASTRIC ULCER

To the Editor:—*A 43-year-old man with a long history of asthma had an acute gastrointestinal hemorrhage four years ago that was identified as coming from a duodenal ulcer. When a second such episode followed within a few months, it was decided to do a subtotal gastrectomy. He required corticotropin (ACTH) or cortisone for the control of his asthma. In the following years there were three episodes of massive gastrointestinal bleeding, presumably induced by cortisone, and on the last episode a gastric ulcer was identified in the residual gastric stump. Methods to control the asthma have failed for the most part, including desensitization to pollens, elimination diets, and the sympathomimetic type of medication. At present he cannot tolerate enough cortisone to enable him to return to his duties as a pharmacist without the danger of repeated gastrointestinal bleeding. How often does cortisone or corticotropin induce peptic ulcer following subtotal gastrectomy? Does surgery have anything further to offer in the way of protection against recurrent gastric ulcers? I have in mind vagotomy.*

James W. Davis, M.D., Tucson, Ariz.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—There have been other cases reported in which cortisone or corticotropin has induced peptic ulcer following a subtotal gastrectomy. When such therapy is urgently needed because of asthma, every sort of protection should be given to the patient as far as peptic ulceration is concerned. In this regard, the subtotal gastrectomy should be at least 75% in extent and a vagotomy should also be done.

Answer.—Both corticotropin and cortisone stimulate gastric secretion, and if their administration is continued the volume of gastric juice secreted in 24 hours may be increased to two or three times the normal level. This increase in secretion, particularly in the empty stomach, is probably responsible for the exacerbation of preexisting ulcers in patients undergoing cortisone or corticotropin therapy. Both corticotropin and cortisone appear to act peripherally on the neuroglandular mechanism in the stomach, since both agents stimulate gastric secretion after vagotomy and in vagus-denervated, isolated gastric pouches in dogs. In the patient under consideration vagotomy would abolish the nervous phase of gastric secretion and accordingly diminish the total output of gastric juice secreted. The procedure, however, could not be relied on to prevent the stimulating action of cortisone or corticotropin on gastric secretion, although their

stimulating action might well be lessened. Direct evidence on this point is lacking, but it is known that vagotomy decreases the secretory response of the stomach to an agent such as histamine whose effect is thought to be predominantly local. It appears probable that a complete or almost complete removal of the gastric secretory glands would be required to prevent increase in gastric secretion following the administration of corticotropin or cortisone. Complete elimination of secretion, however, may not be necessary to avoid ulceration, since much may be accomplished by the administration of food at frequent intervals and of acid-neutralizing drugs.

FLAT FEET IN INFANTS

To the Editor:—*What can be done for flat feet in infants who have just begun to walk? I have a 16-month-old patient with no apparent metatarsal arch at all who walks with a decided external rotation of the feet.*

Arthur Heiser, M.D., Woodville, Wis.

Answer.—The heel should be brought into varus. This is best done by placing a soft felt pad forming an inclined plane, higher on the medial side than the lateral side, under the longitudinal arch. A second pad with an inclined plane directed from the lateral side toward the medial side is placed behind the heads of the first, second, third, and fourth metatarsal bones. If preferred, these pads could be made of sponge rubber. The child should have a well-fitting shoe with a sole about ⅛ in. thick, giving protection and permitting pliability. At a later date a correction can be fastened to the sole of the shoe. The medial side of the heel would then be raised ⅛ in. and a comma-shaped bar placed behind the heads of the first, second, third, and fourth metatarsal bones with the lateral side higher than the medial side. A more detailed description of this technique is given by Emil D. W. Hauser (Diseases of the Foot, Philadelphia, W. B. Saunders Company, 1939, p. 55).

CEREBRAL CONCUSSION

To the Editor:—*In a patient who suffered a concussion (x-ray normal) and who vomited for 36 hours, what are the chances of sequelae in later life such as constant headaches from adhesions, Jacksonian epilepsy, generalized epilepsy, cystic formation, or neoplastic formation?*

Edmund B. Sullivan, M.D., Mt. Vernon, N. Y.

Answer.—The vast majority of patients who suffer from a cerebral concussion without any other complication recover from that condition without any subsequent sequelae whatsoever. From the evidence presented here there is no reason to believe that this patient should suffer from any sequelae either. The appearance of Jacksonian epilepsy as the result of cerebral concussion would be most uncommon, and generalized epileptic convulsions would likewise be uncommon. Certainly simple cerebral concussion should not give rise to any cystic formation, and there is no reliable evidence that injuries to the head ever result in neoplastic growths.

TUBEROUS SCLEROSIS

To the Editor:—*A patient, 14 years of age, has tuberous sclerosis with calcification in the brain, some mental retardation, and convulsive seizures that are very difficult to control. This is the only child of a fine family. All authorities contacted to date have held out no hope whatever. However, with the development of disodium calcium ethylenediaminetetraacetate (Versene), the question arises whether I might be able to do some good by administering this compound, although I realize that it would probably act on the ionized calcium of the plasma, producing serious hypocalcemia. But in the face of a hopeless prognosis, I feel justified in asking an otherwise stupid question.* *M.D., Texas.*

Answer.—The inquiry is apparently based on the false assumption that the calcification within the brain might be the cause of some of this patient's trouble. That is not the case. The calcification is secondary to the degenerative and abnormal changes in the brain. Tuberous sclerosis is a condition in which there are extensive developmental changes within the brain. Unfortunately, except for anticonvulsant medication for the control of convulsive seizures there is no known treatment of value for this condition, and there is no reason to believe that any treatment toward alteration in calcium metabolism would be beneficial in any way.

INJURY TO BRAIN IN EARLY CHILDHOOD

To the Editor:—*A 4-year-old boy had a suspected encephalitis at age 18 months and at that time appeared to recover completely. In the last year his parents have noted that his left leg is ½ in. shorter than the right and that the extremities on the left side are poorly developed and smaller than those on the right. He is naturally right-handed. Physical examination does not reveal any specific muscle group weakness or atrophy. Roentgenograms are normal except for the leg shortening. Neurological and general examination is normal. Could the encephalitis be associated with his growth disturbance?* *Donald C. Carter, M.D., Beaver City, Neb.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Injury to the brain at birth or in early childhood often results in incorrect development of the extremities. Consequently, it could be strongly suspected that the lack of development of the extremities in the patient described is the result of a brain injury secondary to encephalitis.

Answer.—Presumably the illness described as encephalitis occurring when the patient was 18 months old was an acute vascular accident. This clinically is often described as the polioencephalitis of Strümpell. The difference in the length of the patient's legs is probably a well-recognized complication of that illness. An excellent description of polioencephalitis of Strümpell is found in "Infantile Cerebral Hemiplegia: Clinical Features and Pathological Anatomy" (Stewart, R. M.: *Edinburgh M. J.* **55**:488, 1948). The description of abnormality in growth may be found in "Growth Asymmetry Due to Lesions of the Postcentral Cerebral Cortex" (Penfield, W., Robertson, J. S. M.: *Arch. Neurol. & Psychiat.* **50**:405 [Oct.] 1943).

SCLERODERMA ASSOCIATED WITH RAYNAUD'S PHENOMENON

To the Editor:—*A Negro dairy worker, aged 36, has complained of progressive weakness and tightness of the hands for three years. For four years he has had pain when he put his hand in and out of cold water at his job. The onset was in about 1951, when he noted a typical Raynaud's phenomenon, the fingers turning white when dipped in cold water and then becoming red when allowed to warm. Subsequently, swelling of his fingers and hands developed, with the feeling of tightness. He also noted some tightness of the skin over the chest, abdomen, and face. He is unable to hold a bottle in his hands or to lift his arms. There has been no pulmonary, cardiac, or gastrointestinal involvement. The laboratory data and a biopsy of muscle from the deltoid region are normal. This appears to be a case of scleroderma associated with Raynaud's phenomenon. Can the condition be attributed to the nature of his work, which requires immersion of his hands in ice-cold water?* *M.D., New York.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—The patient's occupation cannot be incriminated with certainty in this case because similar symptoms have been observed in patients with scleroderma who were engaged in sedentary occupations. The symptoms may, of course, be aggravated by cold, but the primary cause of scleroderma is still unknown.

Answer.—The description of this case is quite adequate to permit the diagnosis of scleroderma with Raynaud's phenomenon. Since the cause of scleroderma is unknown, one cannot say that this lesion is due to repeated immersion in ice water;

one can, however, say that if this patient complained four years ago of pain, numbness, and color changes on exposure to cold he should have been relieved of this job, since the vasomotor phenomena attendant on emotion or exposure to cold are known to aggravate this disease. Any medicolegal liability would depend on proof of ignoring the worker's complaint at an early date, if such a complaint was made. For references, see "Trauma and Disease" (edited by L. Brahdy and S. Kahn, ed. 2, Philadelphia, Lea & Febiger, 1941).

EPIDIDYMITIS

To the Editor:—*The five interesting answers about epididymitis in* The Journal *of Dec. 4, 1954, page 1374, unfortunately furnish no facts to clarify the subject, for they consist primarily of personal opinions (wishful thinking) and their conclusions are based on nothing positive. All physicians agree that traumatic epididymitis is possible but exceedingly rare; that, under certain conditions, in a person with prostatitis of long standing urine may be forced down a diseased vas by indirect trauma or strain; and that, in the very rare cases that the physician sees, he should be the judge as to cause. The late Dr. James Ewing* (Arch. Path. **19**:*690 [May] 1935) annihilates the view that the involved physician's opinion as to the effect of trauma is usually correct. In fact, he questions whether it ever is true that trauma is the cause of any disease of the testis. Furthermore, we are concerned not with a rare condition but with a "garden variety medico-financial entity" of which there are over 100 claims on file in San Francisco at present.*

According to accepted teachings of physiology and pathology, it is possible for an involuntary contraction of the musculature of a full bladder to force urine through the external sphincter, causing urinary incontinence, but not through the ejaculatory duct's sphincter. The external vesical sphincter lies in the direct line of the expulsive force and will give way before the sphincter of the ejaculatory duct, the direction of which is away from the line of force. I have never known a patient with an alleged "epididymitis by grunt" to complain of the sudden strain causing him to wet his pants. It is universally recognized that it is possible for a patient suffering from chronic urinary retention to strain repeatedly to open the external sphincter without success, although the back pressure can dilate the ejaculatory ducts and the upper portion of the vas. Rolnick and, later, Engle, made their experimental studies on vasa isolated in the upper portion of the scrotum, and although they used syringe pressure they were never able to force fluid into the globus major of the epididymis. If you should receive data that might be helpful in separating facts from opinion but that you do not want to publish, I would appreciate seeing it, as my ideas are not wholly fixed. I appreciate the fact that you do not want to continue a discussion of this type.

I became interested in the subject in 1923 when Dr. Cary Bumpus, who was secretary of the Urological Section of the American Medical Association, asked me to prepare a paper on this theme (J. A. M. A. **91**:*1857-1860 [Dec. 15] 1928). I was particularly interested in the report of Dr. T. A. Storey of Stanford University, who said that in 32 years as a medical supervisor of athletics in various universities he had never seen a case of epididymitis or so-called traumatic orchitis. I have continued to query those who deal with amateur and professional football, baseball, handball, boxing, and tennis (certainly, athletes have frequently been struck in the scrotum), and as yet I have not heard of a case of epididymitis.*

The California Industrial Accident Commission has ruled that all hernias are compensable, as are any medical "accidents," such as a coronary occlusion, that occur on-the-job; also, that "an acute exacerbation of a preexisting lesion" is industrial. Hence the importance of scientific diagnosis as distinguished from "wishful thinking." An epididymitis that appears three to four days after an external trauma, evidenced by ecchymosis of the scrotum, would be definitely industrial.

Consultant number 1 on the list of answers in The Journal *had drawn erroneous conclusions from George Slotkin's paper, in which he offered merely a hypothesis without any proof. If this consultant has any data on the frequency of epididymitis in paratroopers I would very much appreciate the reference to the report. Prior to our entry into World War II, Colonel Fredericks trained a regiment of paratroopers that was expected to land in Norway as ski troops. They had a rough course of training, and all weaklings were quickly eliminated. I discussed with Lieut. Col. A. C. Neeseman, the medical officer of the regiment, the question of the occurrence of epididymitis in the regiment; he said there were no instances. I understand he is now in the European command and can be reached through Hq. 399th Evac. APO #227, % P. M., N. Y. C.*

Consultant number 2 apparently made reference to the report by Slesinger and others (Proc. Roy. Soc. Med. **36**:*323-326, 1943). These young lieutenants based their report on 34 soldiers about whom they theorized, and they suggested that before going into combat soldiers should void so as to prevent urine being forced down the vasa with resultant nonsuppurating chemical epididymitis. This unscientific article apparently irritated their superiors; Lieutenant Colonel Handley later published a report* (Lancet **1**:*779-781, 1946) in which he suggested that the theory was unfounded and that they were dealing with the common type of epididymitis secondary to prostatitis and seminal vesiculitis, the infection being transmitted through the lymphatics and not the vasa.*

While petting parties and prolonged periods of ungratified sexual desires are aggravating factors in prostatitis, a focus of infection such as tonsillitis is frequently the important cause. Several years ago Dr. Elmer Belt of Los Angeles was sued by a lawyer (34 A. C. 601, 212 Pac. 2nd. 509) who alleged that a cystoscopy had caused in him a prostatitis. The case was carried by the physician's insurance carrier to the Supreme Court and there won. However, the I. A. C. has ruled that the passage of a catheter caused prostatitis in one taking penicillin and sulfonamides. A few years ago Surgeon General Bliss sent me to the European Command to investigate the urologic treatment in the hospitals, as too many men were being flown home because of a few red blood cells in the urine ("traumatic prostatitis and epididymitis"). The disease was prevalent among the truck drivers whose vehicles had few or no springs. After a careful study I reported that there would be no more cases of "traumatic prostatitis and epididymitis" if the order against "frauleins" riding on the seats with the drivers was enforced.

In this city there are today over 100 claims for compensation for "traumatic" epididymitis. The only way the young physician can be sure of getting his fee is to accept the patient's statements and report the cases as industrial (and the doctor who is unthinking or not pathologically trained believes his report is honest), because the insurance carrier definitely pays while the patient may, but probably will not. Last year urologists' insurance rates here were increased 50%. I seemed to have fired off a discussion that resolves itself into scientific medicine vs. financial medicine. The five consultants agree that traumatic epididymitis, although possible, is rare, and I am in accord, but how does one explain the frequency of claims for compensation? They all agreed, as do I, that organisms can be transferred by some channels from the prostate and seminal vesicles to the epididymis, but not one has suggested the time limit for such infection to manifest its presence. There is the crux to the whole discussion. A "strain" cannot transfer bacteria from the prostate to the epididymis and have it cause symptoms in hours or minutes, instead of days. The opinion that after prostatic resection an organism has a right-of-way down the vasa, against the natural current, has no scientific basis; applying the same line of reasoning, a hemorrhoidectomy could reverse the direction of the peristalsis of the gastrointestinal tract. I am afraid that the insurance premiums for urologists will be placed in the same group with those of the anesthetists who do lumbar punctures and the radiologists—about $1,000 per year. Epididymitis has become a real financial problem, since it has become a subject that interests malpractice attorneys.

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